STUDIES ON THEME AND ARCHITECTURE IN LA MONTE YOUNG'S 1987 *THE WELL-TUNED PIANO*

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by
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STUDIES ON THEME AND ARCHITECTURE IN LA MONTE YOUNG'S 1987 *THE WELL-TUNED PIANO*

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The two studies presented here investigate theme and form in La Monte Young's *The Well-Tuned Piano*. The piece is one of the most significant and analyzed in his output, particularly the 1981 Gramavision recording. While writings about the composer's work is relatively minimal, the 1987 DVD recording has received little to no scholarly attention. Furthermore, most studies of Young center around tuning, but hardly speak to his ability to shape time on a large scale or transform thematic material—the composer has a keen ability for both. These studies offer insights into such developments and an overview of the six hour work.

In "The Fundamental Processes of Change," I probe how Young varies his musical material in the 1987 recording of *The Well-Tuned Piano* through the lens of its most prominent motif: "The Theme of The Dawn of Eternal Time" (TODET). Through transcription, many avenues of transformation appeared including transposition, permutation, combination, etc. The specific names and time stamps found in the DVD booklet act as a score of sorts, and also lead a listener through the work.

"Architectures of Intensity and Respite" investigates manifestations of Young's material from a structural vantage point. Young uses opposing forces, intensity and respite, to craft a six hour experience. This study traces how these forces articulate a shape extending from the large-scale structure to smaller periods to phrases to themes to the interaction of two intervals. Aspects of theme and tuning are also integrated into this analysis and show how they drive the energy and shape of the piece.

BIOGRAPHICAL SKETCH

Barry Sharp seeks to create an environment of inclusion and experimentation through new dynamics between performers, composers, and audiences. His works often develop out of a specific sound world from which he sculpts a landscape of harmonic, melodic, and textural ideas. He is interested in how musical experiences vary between performers and listeners, given the way these landscapes are constructed and executed versus how they are perceived. Barry has worked with ensembles such as Duo Helix, Amalgama, sTem, JACK Quartet, International Contemporary Ensemble, Bienen Early/Contemporary Vocal Ensemble, [Switch~ Ensemble], Arditti Quartet, the Princeton Singers, OSSIA Ensemble, Un/Pitched, Ithaca New Music Collective, Cornell Orchestras, and the Cornell Chamber Singers. Barry performs with composer Sergio Cote in the experimental duo *etc,* [ee-tea-see] where they pieces through an experimental, rebellious, and democratic approach to sound. Barry previously studied music at Murray State University (BM) and the University of Iowa (MA).

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FUNDAMENTAL PROCESSES OF CHANGE IN LA MONTE YOUNG'S "THE THEME OF THE DAWN OF ETERNAL TIME" FROM *THE WELL-TUNED PIANO*

He's been a rather elusive composer of the past few decades, but La Monte Young's continual development of *The Well-Tuned Piano* over a period from 1964 until 1987 established it as one the most innovative solo piano works of the twentieth century.[1] The piece's significance stems from its use of just intonation, but also as a presumably scoreless-improvised work (the composer has yet to release a score).[2] Within this improvisation exists a plethora of intricately woven themes that demonstrates a careful flow through the composer's musical mind. In the case of 1987 DVD release, six-and-a-half hours of individual themes are exposed to transformations both subtle and drastic that demonstrate Young's ability as a masterful improviser. The material is so consistent across this large-scale period that one could analyze a single recording to decode what these transformations entail. Employing a combination of Young's careful time-stamp analysis of the recording, the recording itself, and my own transcription, this study dissects "The Theme of The Dawn of Eternal Time" captured on the composers last performance in 1987 of *The Well-Tuned Piano*. This specific recording was chosen for various reasons including the fact that Young recognizes it as one of his strongest (and longest) performances. It is also the most recent version, re-released in 2018. More simply however is that this DVD has received minimal scholarly attention at the time of this article's writing.[3]

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[1] Kyle Gann, "La Monte Young's *The Well-Tuned Piano,*" *Perspectives of New Music* 31, 1 (1993): 134; Keith Potter, "La Monte Young," in *Four Musical Minimalists* (Cambridge University Press, Cambridge: 2000): 80; Jeremy Grimshaw, "Space Exploration, Part 2," in *Draw a Straight Line and Follow It* (Oxford University Press, Oxford: 2011): 146-147.

[2] Gann, "La Monte Young's *The Well-Tuned Piano*," *Perspectives of New Music* 31, 1 (1993): 134.

[3] La Monte Young, "Notes on *The Well-Tuned Piano*," in *The Well-Tuned Piano in The Magenta Lights (87 V 10 6:43:00 PM – 87 V 11 01:07:45 AM NYC)*. Just Reams DVD 003, 2018: 17.

Previous studies have focused primarily on the importance of tuning in *The Well-Tuned Piano*, especially in the 1981 Gramavision recording.[4] I recognize how critical and innovative the employment of just intonation is in the piece, and how Young managed to create a new harmonic system from intervallic relationships with the primes 2, 3, and 7.[5] Grimshaw and Gann's scholarship in particular were a starting place, especially when the former author notes how a "dense network of motivic and harmonic interconnections suggested by Young's detailed titles has yet to be thoroughly examined, although the analysis by Kyle Gann has provided the groundwork for such an undertaking."[6] This study examines the journey of one theme in *The Well-Tuned Piano* over the course of six-and-a -half hours and excavates such "interconnections" or what Gann calls a "Wagnerian wealth of anticipatory and reminiscent references."[7]

"The Theme of The Dawn of Eternal Time" (hence referred to, as Gann called it, TODET) merits attention for a few reasons, not least of being it is the most frequently occurring motif in the 1987 recording.[8] It is the very first theme the listener hears in *The Well-Tuned Piano* and occurs eighty-nine times according to Young's detailed labelling in the DVD booklet. Listeners hear TODET often. He spends a significant portion of time at the beginning transforming this motif, and these iterations reappear throughout the rest of the piece in smaller but more frequent periods. The theme undergoes a great deal of variation through colorful titles, rhythmic variants, new intervallic relationships, and more linear-based changes as well. I highlight five primary versions of TODET based on two criteria: 1) The frequency of its appearance in the opening and reflection elsewhere in the piece 2) Whether these versions

[4] Gann's article, specifically, "cracked" the tuning of the piece compelling Young to publicly release the system.
[5] Michael Harrison, telephone conversation with author, March 31, 2019.
[6] Grimshaw, 164.
[7] Gann, 149.
[8] Ibid., 145.

contain a significant transformative property compared to previous iterations of the theme. I do not discount the function of more ancillary variants however; discussing them more toward the end of the study. This analysis investigates variables such as meter, rhythm, interval, line (linear processes), and transposition to track the evolution of TODET from one iteration to the next as well as in the larger context of the piece.

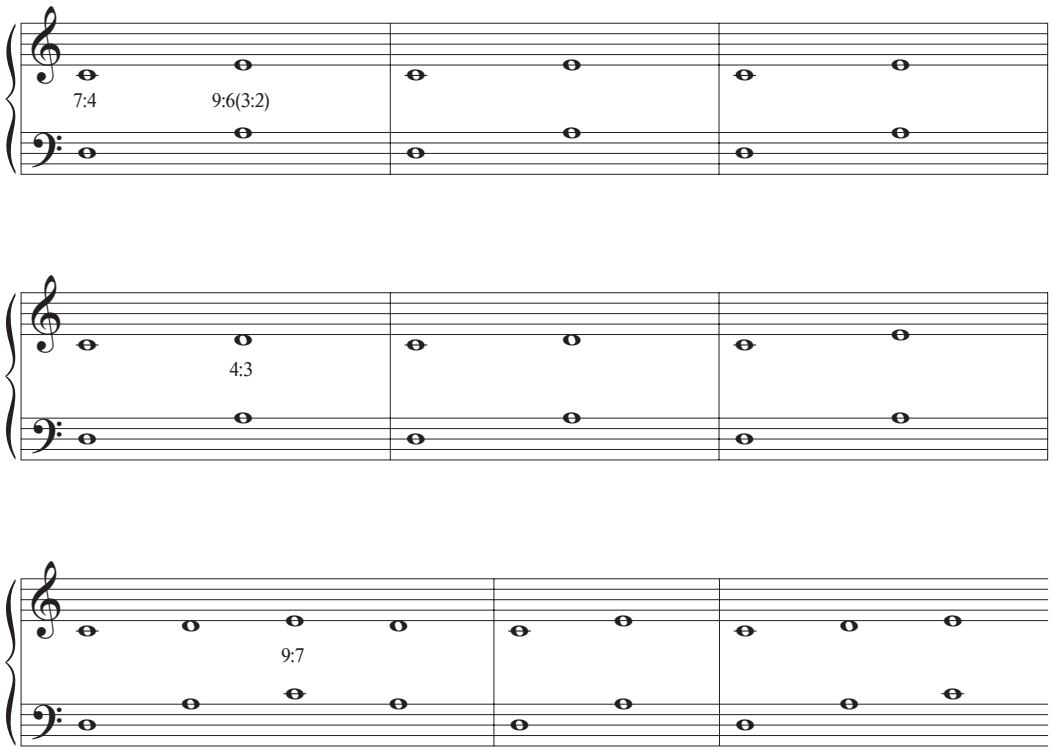
The First Iteration of "Theme of The Dawn of Eternal Time" and a Fundamental Problem

In the beginning, "The Theme of The Dawn of Eternal Time" exists in a primordial phase consisting of a rather undefined rhythmic profile, thereby allowing sonorities to ring in the performance space and set the table for the large-scale course of time to come. Intervals are given priority. From the outset, the D – C (7:4) interval is quite distinctive from the same sonority heard on any equally tempered piano and literally defines the sound world for TODET throughout the rest of the piece. It is one of the theme's essential elements. Likewise, Example 1 shows the theme in sequential whole-notes from the beginning of the piece. Alternating intervallic pairs from D – C (7:4) to A – E (3:2) to D – C (7:4) to A – E (9:6, or 3:2) hint at the extended cadential harmonies listener's are about to hear. These two sound worlds are established in the rest of TODET as ending intervals. One being more "dissonant" (A – D or 4:3), and the other a more consonant ending (A – E or 3:2). This spacious opening texture introduces two intervallic realms from which Young develops a more complex series of cadences and recurring motives.[9]

[9] The only other time Young treats TODET in such a way is at the very end of the piece, perhaps suggesting some sort of larger cyclical structure embedded within the concept of *The Well-Tuned Piano*.

EXAMPLE 1

The Theme of The Dawn of Eternal Time
00:06:28 - 00:08:47



First appearance of TODET. Only new intervals are marked here to avoid redundancy. Bar lines demonstrate heard groupings of intervals and do not necessarily reflect Young's own compositional decisions.[10]

Readers of literature surrounding *The Well-Tuned Piano* might suffer a moment of pause here. Never is there mention of this entire piece being based on a "D" fundamental. In fact, both La Monte Young, his proteges, and scholars studying his work refer to the piece being based on one E-flat, one so slow the human ear cannot perceive.[11] A theoretical fundamental is employed so more parts of the harmonic series are audible to the human ear. By shifting the entire fundamental down several octaves, more complex intervals and harmonics are palpable.[12]

[10] References to time stamps in this study are not the precise ones Young uses. The piece itself does not begin at 0:00 in the DVD, but at 6:28. Likewise, examples including duration throughout this study are adjusted to this six minute and twenty-eight minute timing.
[11] Young, "Notes on *The Well-Tuned Piano*," in *The Well-Tuned Piano in Magenta Lights* booklet (2018): 3.
[12] Harrison, conversation with author, March 21, 2019.

I re-iterate the importance of just intonation to this piece. However, my study seeks to highlight the developmental mechanics of one specific theme. I began this study out of a process of transcription and am thus interested in that which is *heard* versus that which is notated. This brings me to a fundamental problem—if you will—to address: the root tone this piece adheres to is not the E-flat known to Western musical discourse. One can discover this in two ways. First, the theme may be played on an equal-tempered keyboard. The *just* qualities of the intervals will be lost, but comparing the E-flat played on the keyboard to the one heard in the recording the former sounds almost an entire half-step down (D instead of E-flat). However, using an equal tempered keyboard is not entirely useful, so one can download Tom Mudd's *Just Intonation Toolkit* and play the theme with the ratios of Young's keyboard; all is well with the world.[13] This led me to a second way requiring a sine tone generator and a frequency to pitch map. If a sine tone were produced and tuned to the 1:1 interval in Mudd's *Toolkit* or with the lowest notes in the recording of Example 1 of TODET, the result produces between 147-148 Hz. I did just that and checked with three different online frequency generators and found the fundamental frequency is quite far from an E-flat. Indeed, it is much closer to a D, recorded as +2 cents away from D in one instance (see footnote for three different generators).[14] Additionally, some scholarship bears mention of a frequency not far from the one uncovered with sine-tone generator. In the "Space Exploration, Part 2" chapter of Grimshaw's book, he mentions that the fundamental vibrates at about 18.4 Hz[15]. The eighth harmonic of, or three octaves above, 18.4 is 147.2 Hz which can be found by multiplying 18.4 times 8 (octaves vibrate at double a

[13] Tom Mudd, "Just Intonation Toolkit," *Just Intonation Toolkit* http://tommudd.co.uk/justintonation/ (accessed Feb 1, 2019).
[14] See frequency generators here: *Frequency to Musical Note Generator*, https://newt.phys.unsw.edu.au/music/note/, Accessed February 5, 2019; *Pitch to Frequency Mappings*, http://peabody.sapp.org/class/st2/lab/notehz/, Accessed on Feb. 5, 2019; *Frequency to Musical Note Converter*, https://newt.phys.unsw.edu.au/music/note/ Accessed Feb. 5, 2019.
[15] Grimshaw, 170

fundamental, and are therefore multiplied by 2). In John Schaefer's essay contribution to *Sound and Light,* he alleges a fundamental vibrating at 0.018 Hz, which results in a frequency vibrating at 147.456 Hz in a much higher octave.[16]

The evidence seems points to D as the 1:1 soruce of the piece, and there are a few explanations as to why this may be the case. Young tries to lay out the ratios of his system on the keyboard so that they closely adhere to equally tempered values already there. That is, the Bösendorder piano he uses vibrates to fulfill the practice of equal temperament. Going too far away from these pitches runs against with the instruments construction. Thus, the composer tries to lay out as many of the white keys in their truest form as possible, by fifths, on the piano: C – G – D – A – E then are occupied by tuned fifths (3:2).[17] Those pitches occur close to the equal-tempered notes but are justly tuned on Young's keyboard. Furthermore, he has both used C already on the piano as a reference pitch for the tuning and but also to build that lattice of fifths. If you were to tune D to a 7:4 interval (a septimal seventh harmonic) below it then, you would get a D. However, that pitch has already been occupied by that D used in that cycle of fifths, so the D (7:4) is placed on the E-flat key.[18]

The note Young is referring to, then, is not pitch happening in *heard* pitch space but the one activated physically on the piano. The E-flat to which scholars and Young refers is actually the E-flat note on the keyboard. To my earlier point about transcription, this speaks to why I am interested in the aural values found in *The Well-Tuned Piano*. I recognize the phenomenon discussed above, but find it becomes rather difficult to discuss the characteristics of themes when the aspect of what is heard contradicts what mechanism is played. In lieu of an E-flat, I move

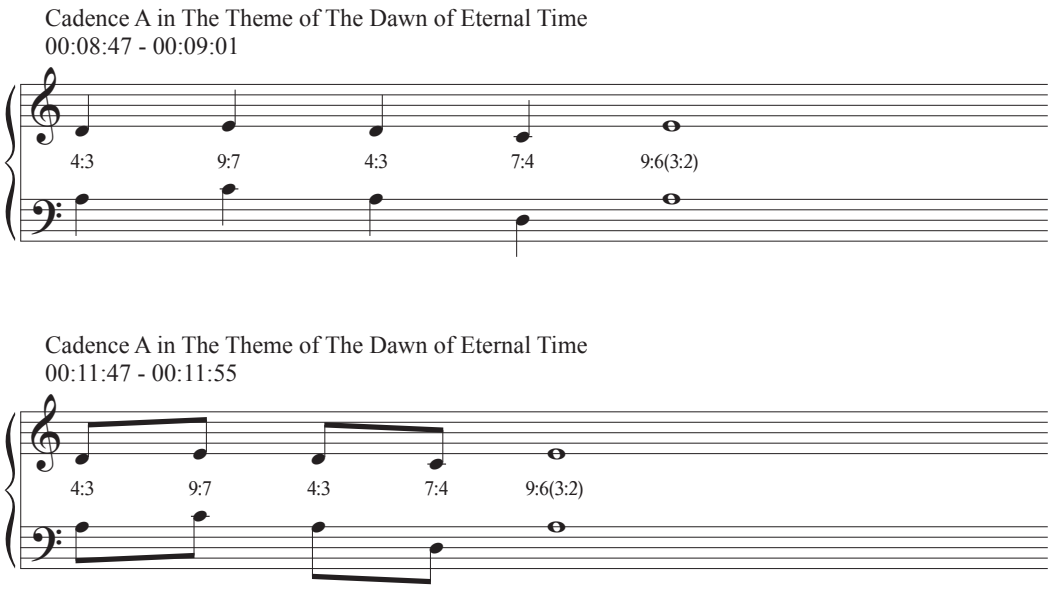
[16] John Schaefer, "Who is La Monte Young?" in *Sound and Light*: *La Monte Young and Marian Zazeela* ed. William Duckworth and Richard Fleming, *Bucknell Review* 40, 1 (Lewisberg, PA: Bucknell University Press, 1996): 28.
[17] Harrison interview
[18] Harrison, conversation with author, March 21, 2019.

forward uncovering the facets of “The Theme of The Dawn of Eternal Time” as being built around a D (1:1) fundamental. My promise to the current reader was a discussions of specifically thematic material, and henceforth I resume that investigation with the next variation of TODET.

“Cadence A from The Theme of The Dawn of Eternal Time”

The first significant change in pace the listener hears in *The Well-Tuned Piano* happens a little over two minutes into the piece. After a series of slower paced sonorities, five intervals are heard in a slightly faster and regular tempo. This is the first time the "Cadence A in The Theme of The Dawn of Eternal Time" appears in the piece, and the second type of variation of TODET heard (shown in Example 2 below):

EXAMPLE 2



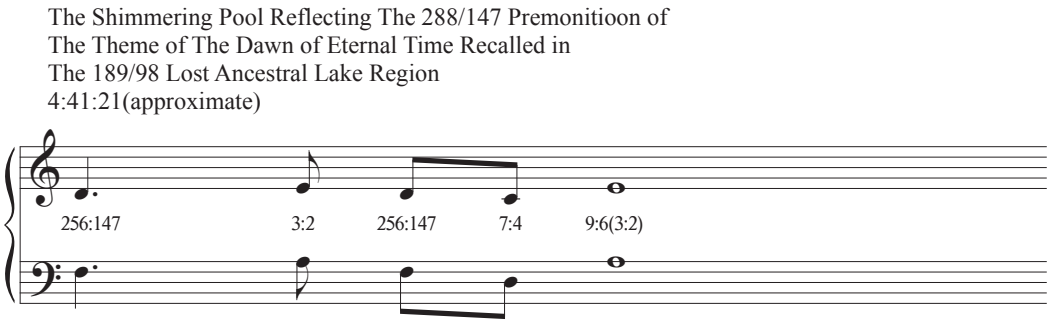
The "Cadence A" (referred to as CAD A from here on) theme is one of the most significant versions of TDOET. It always appears in five-note sequences and is quite distinctive throughout the piece from the very first time it occurs to even the end. In the DVD of this 1987

recording it is not always labelled directly, something that happens every now intentionally or not, but is immediately grasped from the listener's perspective in three ways: 1) steady rhythm, 2) a progression of five-intervals themselves within this rhythm, and 3) its appearance as the start or end point of something new.

Looking back to the example of CAD A below is a sequence of evenly paced notes. This is the case in other examples of the motive where that rhythm is augmented or diminished to extremes. Also shown is CAD A after a few more minutes into the piece at 11:47. Again, the sequence of five intervals remains the same, and the rhythm progresses in steady eighth-notes opposed to quarters in the last example. This same treatment continues at 19:56 and 20:07, until the listener reaches a later passage titled "The Shimmering Pool Reflecting The 288/147 Premonition of The Theme of The Dawn of Eternal Time Recalled in The 189/98 Lost Ancestral Lake Region," where CAD A appears at 2:23:29. While the actual theme is unlabeled in the name (it is stated clearly later on), the theme is nonetheless audible. The trademark sequence of five intervals in an even eighth-note rhythm appears, albeit the intervals change slightly. Another example of an unmarked fragment occurs in the midst of the "Shimmering Pool…" TODET at 4:40:34. Example 3 demonstrates how the eighth-notes are still intact, but it is really the last four set of intervals, and their quick succession that are a nod to CAD A. The rhythmic qualities of CAD A begin to fade, a process seen with this variant and other themes throughout *The Well-Tuned Piano*. Looking back to Example 4, the steady stream of five intervals are fragmented. This is where the intervallic content of the theme is audibly important. The five intervals drawn from the original TODET progress from A – D (4:3) to C – E (9:7) to A – D (4:3) to D – C (7:4) to A – E (3:2); the most frequently repeated interval being A – D (4:3). This sequence becomes

more varied throughout the rest of the piece with added harmonic intervals, such as in “The Shimmering Pool…” section, or by subtracting linear intervals.

EXAMPLE 3

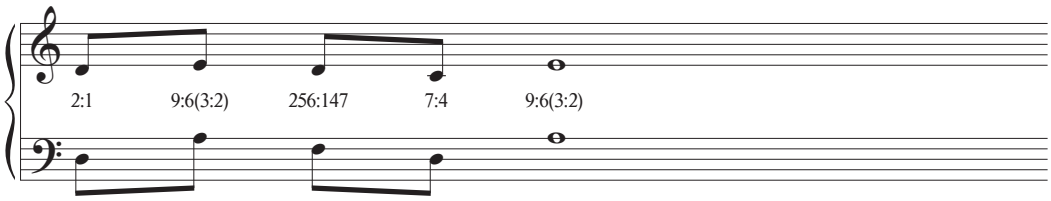


The most consistent feature of CAD A is the higher melodic line. Intervals remain mostly the same in "The Opening Chord" and change as the piece progresses, but the sequence of pitches in the higher melodic line retains its identity moving from D – E – D – C – E. This is true even from time stamp 8:47 to 2:23:29, when the theme's lower voice includes other pitch relationships from D – A – F – D – A. Example 4 below shows this CAD A variant. It is not actually labelled in the 1987 booklet, but the theme aurally in this period nonetheless. Likewise in Example 4 it is clearly labelled and in the same form.

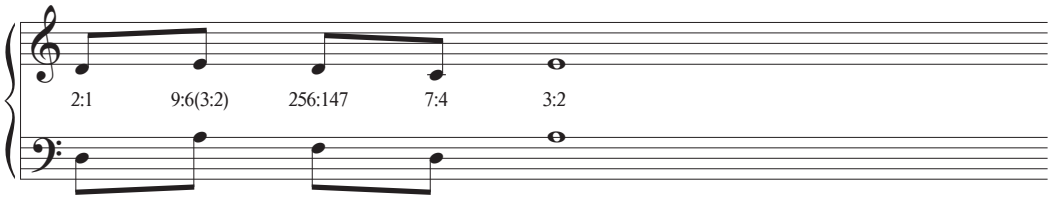
The “Cadence A in The Theme of The Dawn of Eternal Time” is like a bite-sized piece of musical material a listener can grasp throughout this work. Brief but always famiilar because of its distinct rhythm and sequence of intervals, this idea is true across TODET’s other variations. Rhythm and intervals are a hallmark of the theme and this study highlights the processes Young uses throughout *The Well-Tuned Piano*.

EXAMPLE 4

The Shimmering Pool Reflecting The 288/147 Premonitioon of
The Theme of The Dawn of Eternal Time Recalled in
The 189/98 Lost Ancestral Lake Region
02:23:29



The Shimmering Pool Reflecting The 288/147 the first five notes of
Cadence A in The Refrain from the 288/147 Premonitition of
The Theme of The Dawn of Eternal Time Recalled in
The 189/98 Lost Ancestral Lake Region
03:05:04



<u>"The Refrain from The Theme of The Dawn of Eternal Time"</u>

Ubiquitously appearing throughout *The Well-Tuned Piano* is a variation or otherwise of one particular theme that goes by the name "The Refrain from The Theme of The Dawn of Eternal Time" (shortened here to REF TODET). Again, the theme is not always labelled as such in the booklet. Just as CAD A has aurally identifiable features, REF TODET exhibits similar musical treatments of its rhythm, intervals, and linear make-up.

An important aspect of this variant is in the name itself, the appearance of the word "refrain." Because this motif appears so frequently with that modification, I find it appropriate to first determine what constitutes a refrain and why La Monte Young might use it in this instance. In the music itself it appears to signal a the notion of repetition. This notion falls in line with

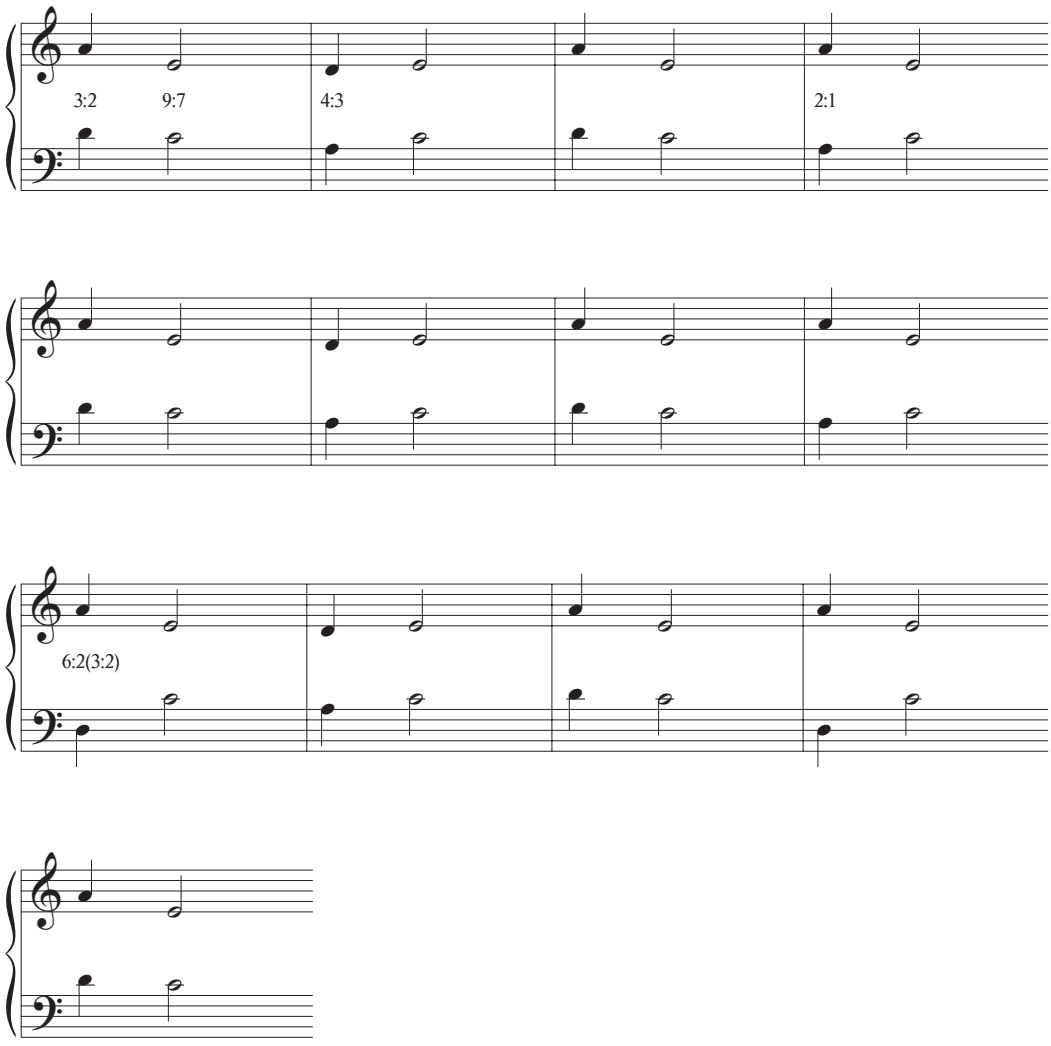
poetic refrains; repetitious structures found often the end of a stanza.[19] Young's use of refrain also, as we shall find, references Western vocal music from 1150 to 1450. In that time period it was used as a primary segment of musical material that moved from one group of works to another. It was mobile construct adapted to different musical contexts and transmitted from one area to another without changing.[20] The repetitive and transmissible nature of REF TODET aligns with that Western traditional notion of refrain. Furthermore, among the TODET variants it is the most recurring and is perhaps even more clearly recognizable than CAD A because of it has a much more fundamental make-up that remains consistent across *The Well-Tuned Piano*. Similar to the analysis of CAD A, here I investigate the materials that make-up REF TODET and its subsequent transformation.

The Refrain is first introduced at 9:38 into WTP during "The Opening Chord." The most noticeable difference from the material that came before is the addition of the higher interval between D – A (3:2). As of yet, this higher A has only been heard once in the piece in the thematic fragment that came before (CAD REF TODET). This higher D – A (3:2) interval is one of the motive's signature sonorities and only appears more than once in its context. Example 5 shows REF TODET at 10:38:

[19] Clark, Suzannah. "Refrain," in *Oxford Music Online,* Accessed March 13, 2019: http://www.oxfordmusiconline.com.proxy.library.cornell.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000023058).
[20] Ibid.

EXAMPLE 5

Refrain from The Theme of The Dawn of Eternal Time in 3/4 Time
00:10:38 - 00:11:05



Specifically, D – A (3:2) produces a constant repetition of high A on beat one, occasionally dipping down to the D below. Bar after bar includes an iteration of this high A in the upper voice. This is a consistent facet of REF TODET throughout the piece in terms of both pitch and rhythmic placement, but also are the sustained sonorities on beats two and three. Beats two and three take on the form of a drone interval and are the only intervals sustained within a

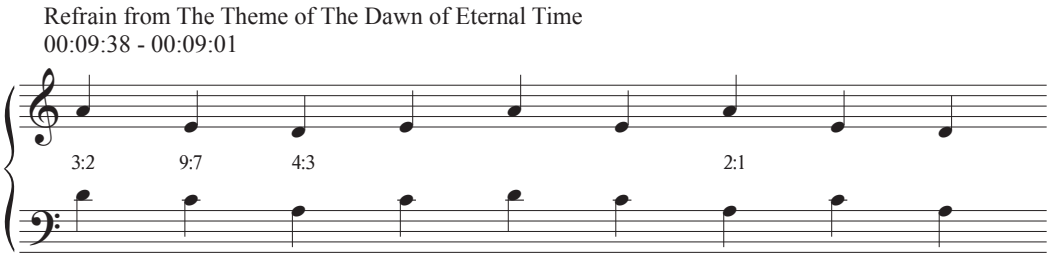
given line. They hardly ever change within a discrete phrases across *The Well-Tuned Piano*. The tuning of the septimal seventh harmonic layered with E (C – E [9:7]) creates a pool of resonance over which other intervals on the first beat—that is, the changing intervals of beat one—interfere with from one measure to the next. The result is, indeed, a drone; something fundamental to La Monte Young's music and in *The Well-Tuned Piano* in general.

For the sake of focusing on thematic transformation, this analysis is not fully equipped to say more about that drone interval, other than that it shapes the rhythmic profile of REF TODET on beats one and two. Indeed, in conjunction with the changing intervals on beat one, it establishes a very clear rhythmic profile for the motif. Looking back to Example 5 showing the iteration at 10:38, the theme establishes this three-four metric profile. Young even labels the theme as such in the beginning of the piece, though this will disappear over the course of time. This may be due to the rhythm's self-evidence with a changing interval on beat one, sustained intervals on two and three, and thus an implied division of metrical time which remains consistent across repetitions of REF TODET in *The Well-Tuned Piano*. Every time this theme appears it will be in this meter. Even these slower sections will speed up over time to re-establish it's original profile.

There are exceptions, such as with Example 6, the first instance of this theme at 9:38. Here the theme hasn't quite yet developed into the recognizable rhythm that it will take on throughout the piece. As with the other themes, this is the case. Young is slowly developing his material in the beginning. He plays the intervals slowly to establish a sound world. Other sections of the piece follow this same concept and in a few cases the theme leads into new, more dense material such as with "The Shimmering Pool." The "Refrain" iteration of TODET almost

embodies every aspect of the theme itself. From the beginning onward, there aren't many points of extreme variation from three-four time.

EXAMPLE 6



REF TODET's linear process is similar to CAD A. Looking back to Example 1, notice how notes in the upper voice change very little. It is essentially A – E (3:2), D – E (9:8) where linear modalities of REF TODET change throughout *The Well-Tuned Piano* is with its bass line. Even in the beginning Young plays with the bass line, typically proceeding from D – C (7:4), A – C (6:7), but on occasion it will dip down to D3 in the middle of the bass staff. Sometimes, the first beat will be in either octave A – A (2:1) or D – A (6:2) with the upper voice. Young employs this permutative process throughout the piece to create subtle changes in the character of a given line. By simply shifting the notes in a bass line, Young can repeat a motif with an added subtle variable. The fact that he is capable of doing so in a six-hour improvisation, across various themes and without a score, point to the composer's keen ability to vary his material in ways both subtle and dramatic.[21]

[21] Harrison, conversation with author, March 21, 2019.

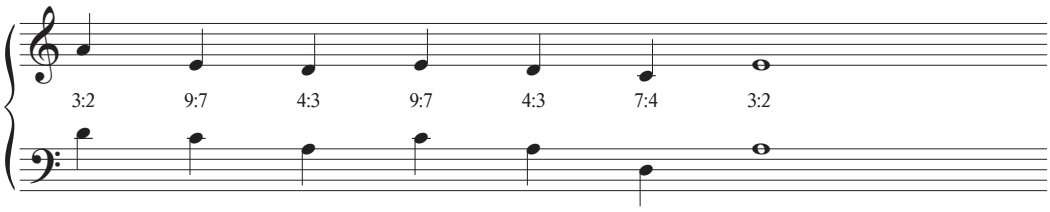
"Cadence A in The Refrain from The Theme of The Dawn of Eternal Time"

Young's unique sense of titling for his themes always hint at their transformative properties. As elaborated before with the word "refrain," he continues generating hybrid themes using the same material. The "Refrain" variant of TODET occurs the most frequently throughout *The Well-Tuned Piano*. However, another theme combines the material of REF TODET and of CAD A in the piece demonstrating yet again how Young's title for a theme almost always reveals something about the materials from which it is composed.

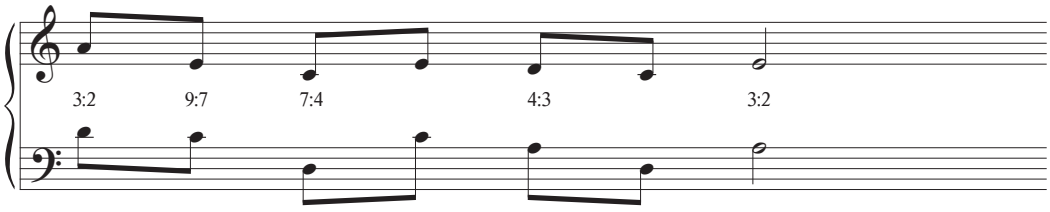
"Cadence A in The Refrain from The Theme of The Dawn of Eternal Time" is a mashup. Young situates the latter part of CAD A with the beginning part of REF TODET to form this theme (CAD A REF). The first instance of the motive occurs before the "Refrain" at 9:20 and are followed by nine more recurrences in "The Opening Chord." Later on in the piece, this theme will become mostly absorbed into REF TODET, largely going unlabeled but still containing audible trademarks. Comparing "Refrain" and CAD A REF, the two themes are seemingly identical in the beginning. Example 7 demonstrates a few times this variant occurs at 10:05 and 17:35. A quick glance back to Example 5 and the intervals from the first four notes are the same. The theme differs in two ways however. First, it lacks the clarity of meter. In the latter thematic analysis, Young presents REF TODET with a clear rhythmic profile in three-four time. CAD A REF has no such special meter, but does retain the steady eighth-note rhythm of CAD A. Second, the motivic hybrid is more similar to CAD A because it is significantly shortened. It is really only made of seven intervals, with the last five being exactly those from CAD A (refer to Example 2). The only resemblance then to REF TODET are the first two notes of the them where both REF TODET and CAD A REF contain similar intervals in their beginning few notes.

EXAMPLE 7

Cadence A in The Refrain from The Theme of The Dawn of Eternal Time
00:10:05 - 00:10:14



Cadence A in The Refrain from The Theme of The Dawn of Eternal Time
00:17:35 - 00:17:39



"The Shimmering Pool Reflecting The 288/147 Premonition of The Theme of The Dawn of Eternal Time Recalled in The 189/98 Lost Ancestral Lake Region"

About an hour and a half of music passes before TODET is heard again after "The Opening Chord." This long period of time contains no graspable references to TODET. However, when the material returns and sounds familiar, but something has indeed changed about the quality of our little motif. During this time Young has progressed through the entire "Magic Chord" area and has moved into a hybrid of the two: "The Magic Opening Chord" The composer combines intervals and pitches of both previous chordal sections into one meta scale with additions including approximates of F (288:147) and B-flat (189:98) in this section.[22] When TODET is recalled in this section, and from here on out, these added intervals cause the outcome of the theme to have been altered slightly. Some of the permutations Young used now integrate

[22] Harrison, conversation with author, March 21, 2019.

the F (288:147). Likewise, Young reflects such transformations in his name for the theme, pointing directly to the addition or alteration of intervals and describing the sonic nature of the motif itself. The first theme heard in this section comes at 2:19:39 and is given one of the most lengthy naming schemes TODET will receive: "The Shimmering Pool Reflecting The 288/147 Premonition of The Theme of The Dawn of Eternal Time Recalled in The 189/98 Lost Ancestral Lake Region."[23] A few aspects of this name illuminate SPR TODET's transformation. First, the word "Premonition" speaks to its rhythmic regularity, like the "Premonition in The Opening Chord," that builds toward a "cloud" section. Young seems to be infusing the iteration of TODET with material from "The Fountain (New version with Low Eb)" section that appears later on. Further, the word might foreshadow versions to come such as in "…The Lost Ancestral Lake Region" part of the title. I investigate this point in the section about that theme, but for now will focus on other characteristics which define it throughout.

The second important development in this theme is altered intervals. From this version onwards Young integrates an F into most subsequent iterations of TODET, thereby opening the theme to new possibilities for permutation.[24] In Example 8, this added F generates a new interval on the second beat with F – D (256:147), then more dissonantly between F – E (288:147) four beats in. The new combinations of intervals that Young uses are as follows and are marked in the example: F – D (256:147), F – E (288:147), and F – A (192:147).

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[23] Young, "Timed Sequence of the Chordal Areas, Themes, and Durations in this Performance," in *The Well-Tuned Piano in The Magenta Lights*, 24.

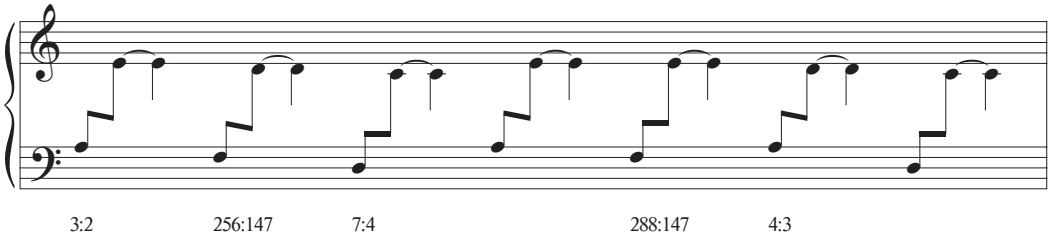
[24] Essentially, 288:147 is a very wide major seventh interval and one can this out by reducing the numbers by their factors. 288 and 147 reduce by 3 to 96:49. If I were to multiply 49 times 2 (to produce an octave), I would get 98. This means 96 and 98 are two harmonics apart, an extremely close major second. If we reduce each number individual down to their lowest prime factor, 96 becomes a factor of 3 (meaning it is build on the fifth harmonic of 1:1) or 3:2), and 49 reduces to 7 (meaning it is built on the seventh harmonic of 1:1 or 7:4). This interval is constructed from the fifth harmonic *of* the seventh harmonic *of* La Monte Young's original 1:1 fundamental.

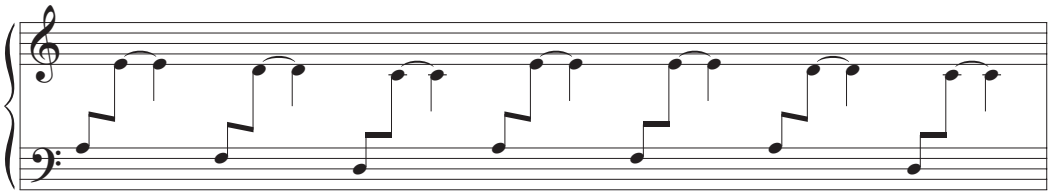
Both the upper and lower voices resemble some of the original material from "The Opening Chord" iterations of TODET, with some rhythmic augmentation—that is, slowed down—and fragmentation. Compared with Example 1, the repetitions on A – E (3:2) are fragments of the last few notes of CAD A. I have marked the bar lines in the theme as such to show this. In the upper voice, the four-note cell is exactly like CAD A without the first D – E – D – C – E. Varied is the bass line, where Young changes the lower voice to E – E – D – C – E. This is where the lower voice is of intervallic interest through the new found harmonic possibilities of the F – E (288:147). New linear tensions emerge in the progression when E is repeated over the moving bass. This “prelude” to the refrain (not labeled a such in the booklet) of Young's new TODET transformation a somewhat permanent addition throughout the rest of the piece; along with the “F” interval. Furthermore, the simplicity of this transformation note addition allows Young to retain much of the original shape of the motif.

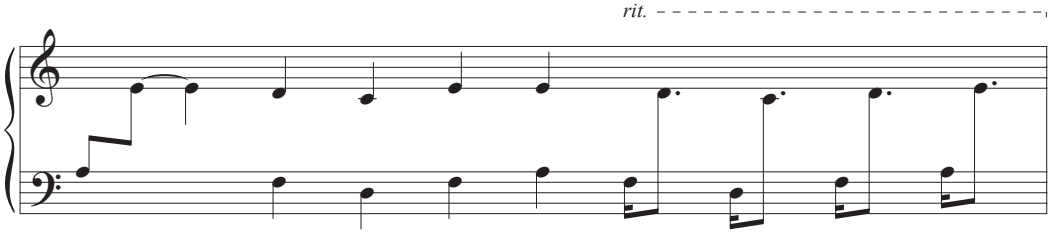
When SPR TODET appears again later on in the piece, there are a few more brief intervallic additions. One example is at 4:39:33, using some of the material from TODET fragments in the "The Opening Chord,” where CAD D appears at the beginning and later on iterations of CAD A, CAD B, CAD C, and REF TODET. Within this frame of time, Young essentially presents the most prominent thematic fragments heard so far under the guise of SPR TODET. Nestled in these recapitulations, however, is a very rare set of intervals that do not appear again in the piece. Almost immediately there is a combination of high "A" and the "E" below it that begin a TODET fragment (CAD D to be precise). Normally, Young combines high "A" with the "D" below it. However, such an addition never occurs in this way as shown in Example 9.

EXAMPLE 8

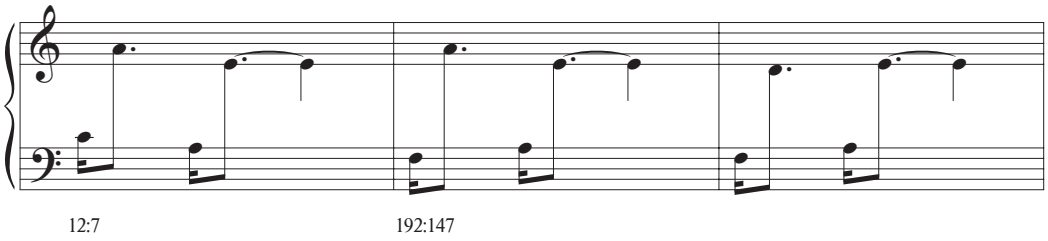
The Shimmering Pool Reflecting The 288/147 Premonition of
Theme of The Dawn of Etneral Time Recalled in
The 189/98 Lost Ancestral Lake Region
02:19:39 - 02:20:21



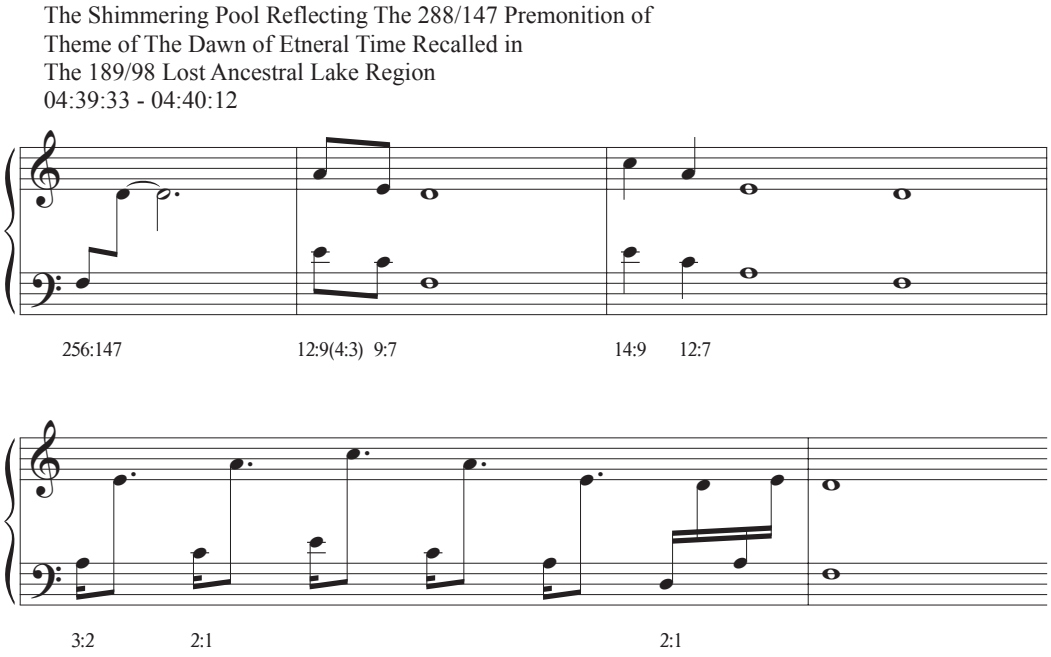




The Shimmering Pool Reflecting The Refrain from The 288/147
Premonition of Theme of The Dawn of Etneral Time Recalled in
The 189/98 Lost Ancestral Lake Region
02:20:21 - 02:20:50



EXAMPLE 9



Mere seconds later, Young reaches to the C above the "high" A (7:6), then combines that higher C with E below (14:9) resulting in a minor sixth interval, albeit not the one we traditionally associate with equal temperament. A progression of intervals follows: E – C (14:9), C – A (12:7), A – E (4:3), F – D (256:147). Young ascends back up these intervals in the next phrase as well. These added intervals the TODET line dramatically. Never has the music ascended to the C demonstrated in Example 9. The upward motion occurs for an instant, reapeating twice more in the context of SPR REF TODET. Not only does the music shift into the higher register, but Young's sudden change of meter to two-four time is a startling change. The ear becomes attuned to three-four, and these slight changes in both rhythms and intervals are amplified as a result. TODET's higher C is a somewhat exciting moment because it appears but four times throughout six and a half hours. Whether they are a pre-formed construct, or purely

intuitive decisions made in the moment, such smaller changes are common in Young's transformation practices, and he continues to do so with other versions.

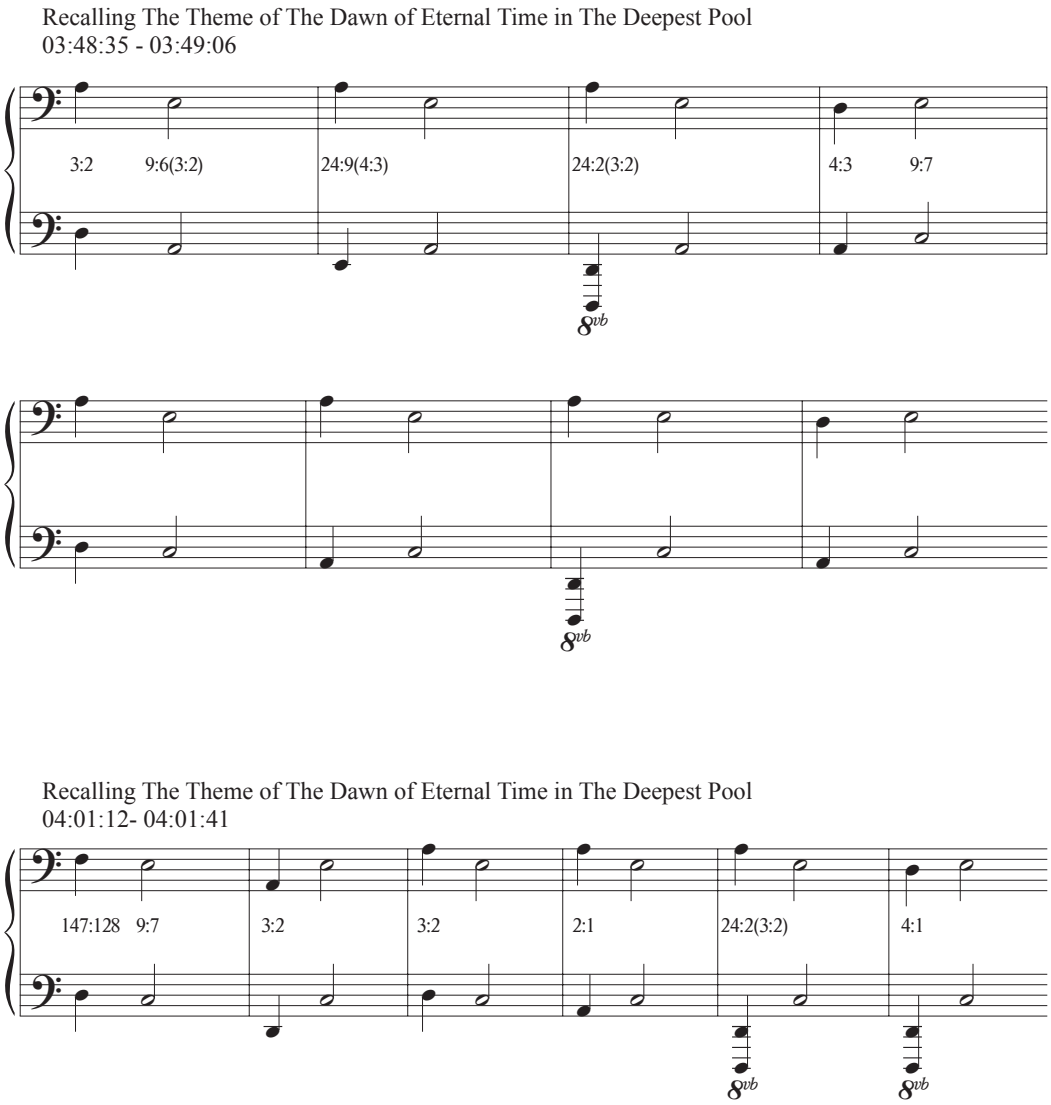
"Recalling The Theme of The Dawn of Eternal Time in The Deep Pool"

Young's iteration of SPR TODET points to transposition as another mode of variation in *The Well-Tuned Piano*. By simply transposing a "C" up the octave, the composer generates a new quality, possible intervallic relationship, and change in register. This transformation of the theme becomes especially true about an hour later in the piece under recapitulations in a "Deep Pool." The composer generates two types of "Pool" variants. The first, "Recalling the Theme of The Dawn of Eternal Time in The Deep Pool" refers to the transposition of TODET down the octave with an added low D2. The intervals remain exactly the same from the first iteration of TODET.[25] The second type, "Recalling the Theme of The Dawn of Eternal Time in The Deepest Pool," actually happens sooner in the 1987 recording of the piece with the first at 3:37:30. Another iteration of "Deepest" TODET is shown in Example 10. As far as bass lines and melodic lines, they receive the same treatment as the other versions with the primary thematic material in these versions largely draw from REF TODET; remaining mostly in three-four time. This specific variant is almost exactly like TODET in the "Deep Pool." However, the low D2 is replaced with the lowest note in *The Well-Tuned Piano*, D1 and D0 an octave below, but the interval combinations remain the same. Young does occasionally play with adding the F from SPR TODET into either of the "Deep Pool" themes. Notice in Example 10 how the F does not

[25] Octaves remain the same in *The Well-Tuned Piano*. Young still divides the octave into twelve parts, but tunes each of the 12 pitches within that octave to different tones. Those tones do not always match the notes of an equal tempered piano, but in Young's tuning system, they match from one octave to the next. I think of it as filtering out frequencies to reveal a lattice that repeats itself from one D (or E-flat on the piano) to the next. Just as well, 7:4 (D – C) is the same in one octave as 1:1 (D – D).

appear, but is added twelve minutes later. The sound world reflects on the material of the "Shimmering Pool…" version of TODET (an octave down), despite it being unlabeled.

EXAMPLE 10



The transposition of the intervals down the octave and the lower Ds down two to three octaves is what makes the "Deep Pool" variants special. Their aural thickness is difficult to describe until one hears it in the context of the piece. It sounds utterly different from any of the other versions, yet somehow retains that air of familiarity. Since the intervals are lower, they vibrate for a longer period (thus the "Pool" reference perhaps) and therefore more dissonantly

with one another because of this. The sound world Young creates by simply transposing the theme down the octave is a rather simple concept, but with the aid of justly tuned intervals and the piano's fine tuning here, the composer achieves a murky and rich lower register vibrates your very soul.

"Recalling The Theme of The Dawn of Eternal Time in the 189/98 Lost Ancestral Lake Region"

No version of TODET demonstrates all of these aspects of transformation better than "Recalling The Theme of The Dawn of Eternal Time in the 189/98 Lost Ancestral Lake Region." I have stuck with simple names throughout, and will do it again in giving the theme a LALR TODET acronym. LALR TODET appears only towards the very end of *The Well-Tuned Piano*, and only appears five times. Young absorbs REF TODET into the theme, largely distinguishable by its clear meter. He also includes many of intervals from previous iterations. Yet, one aspect of this variation makes LALR TODET quite distinctive from the other: it is transposed down by a perfect fifth. When the theme is first heard at 05:55:21—almost a full six hours into the piece—the sound world is markedly different. Indeed, when I set to transcribing this theme, I noticed that it sounds more closely to the "Deep Pool" versions, and almost transcribed it as such. After listening back and forth between them (and consulting an instrument) I uncovered this special moment. Despite being shifted down fifth, LALR TODET retains the same relationships to pitch and interval progressions as previous versions. In Example 11, the first iteration can be seen built on G2 instead of D3, the highest note being a high D4 instead of a high A5. Transposition aside, this variant still uses aspects of REF TODET's meter and progression of intervals, and other repetitions of LALR TODET are also recalled in the "Deepest Pool," with the lowest G on the Bösendorfer piano activated (one octave below the one on a normal piano). Another new quality

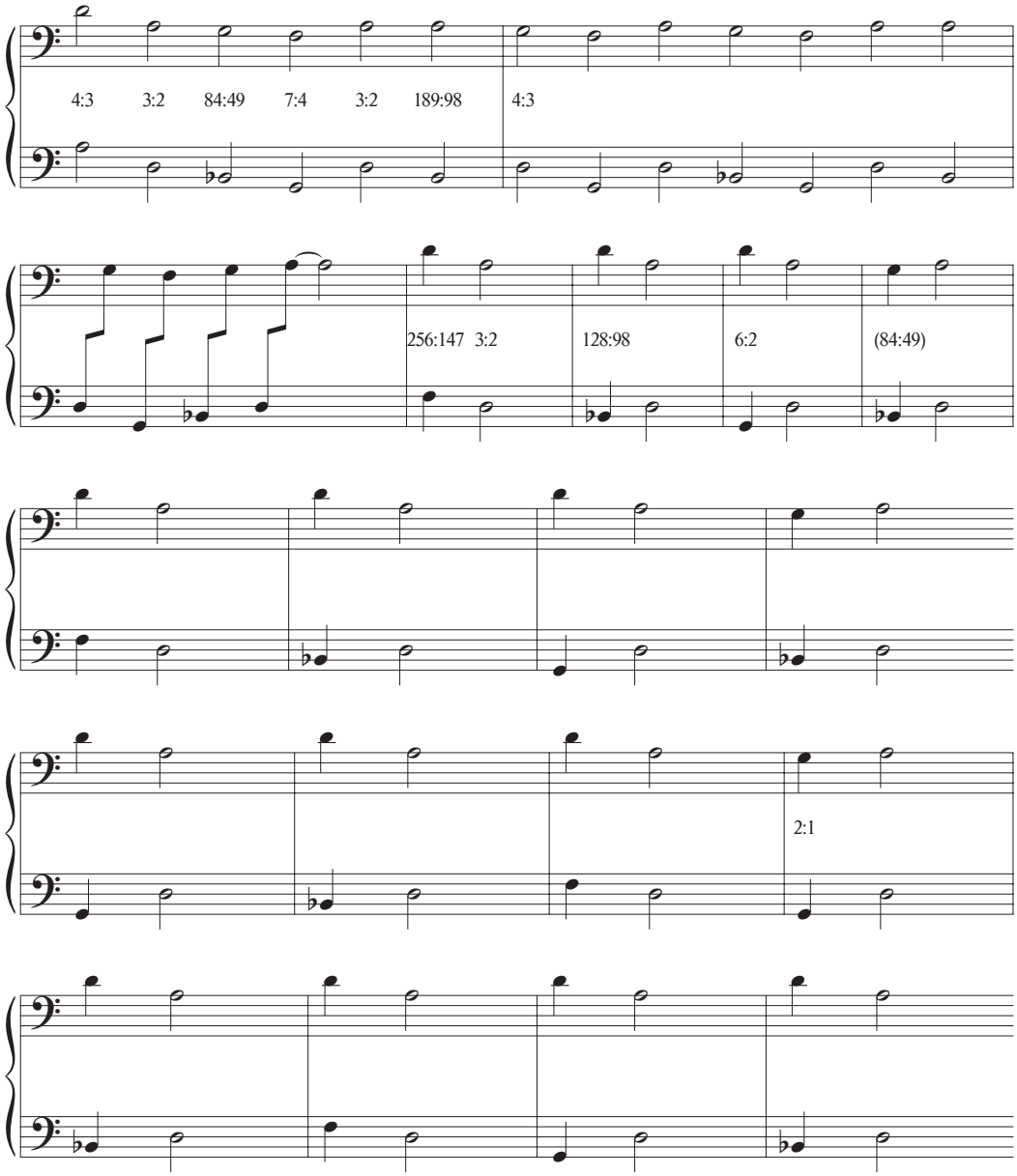
of the theme is the addition of a B-flat, which would be the intervallic equivalent of an F in previous versions built on D (1:1). This is where the 189:98 interval comes in to play in our previous references to the word “Premonition.” The B-flat hinted at before this section never actually appeared, it was only implied by being in “The Magic Opening Chord.” It was foreshadowed that this interval would soon arrive, and here it is presented in completion within a new context. This large-scale plan of “Premonitions,” or the idea that a theme implies something is to come, demonstrates Young’s ability to control large-scale time during an improvisation, his intimate relationship and development with each of these themes over the course of decades allowing him to integrate such interreferential material.

Even more exciting is the fact that LALR TODET transposes between two different types of D, one slightly higher than the other. Example 14 demonstrates an instance of this process happening twice in a given phrase, where the idea is shifted to a new version of "D" that is a slight flat.[26] This is because the way in which Young organizes the intervals on the keyboard, they are extremely close together. He could perceivably switch between two different types of G, or D, or A, by moving all of the intervals one-half step away on the piano keyboard. Furthermore, because of octave equivalency the themes can be fully transposed into these new slightly higher or slightly lower regions.

[26] This is another aspect of Octave equivalency. That Young can transpose the theme down by a very miniscule interval and maintain enough intervals TODET to do an entire iteration of the idea slightly flat from previous ones.

EXAMPLE 11

Recalling The Theme of The Dawn of Eternal Time in the 189/98 Lost Ancestral Lake Region
05:55:21 - 05:56:14



Most versions of this motif are in G, but there is one instance in which it is transposed back to D. Furthermore, LALR TODET transposes between two different types of D, one slightly higher than the other. Example 12 demonstrates an instance of this process happening

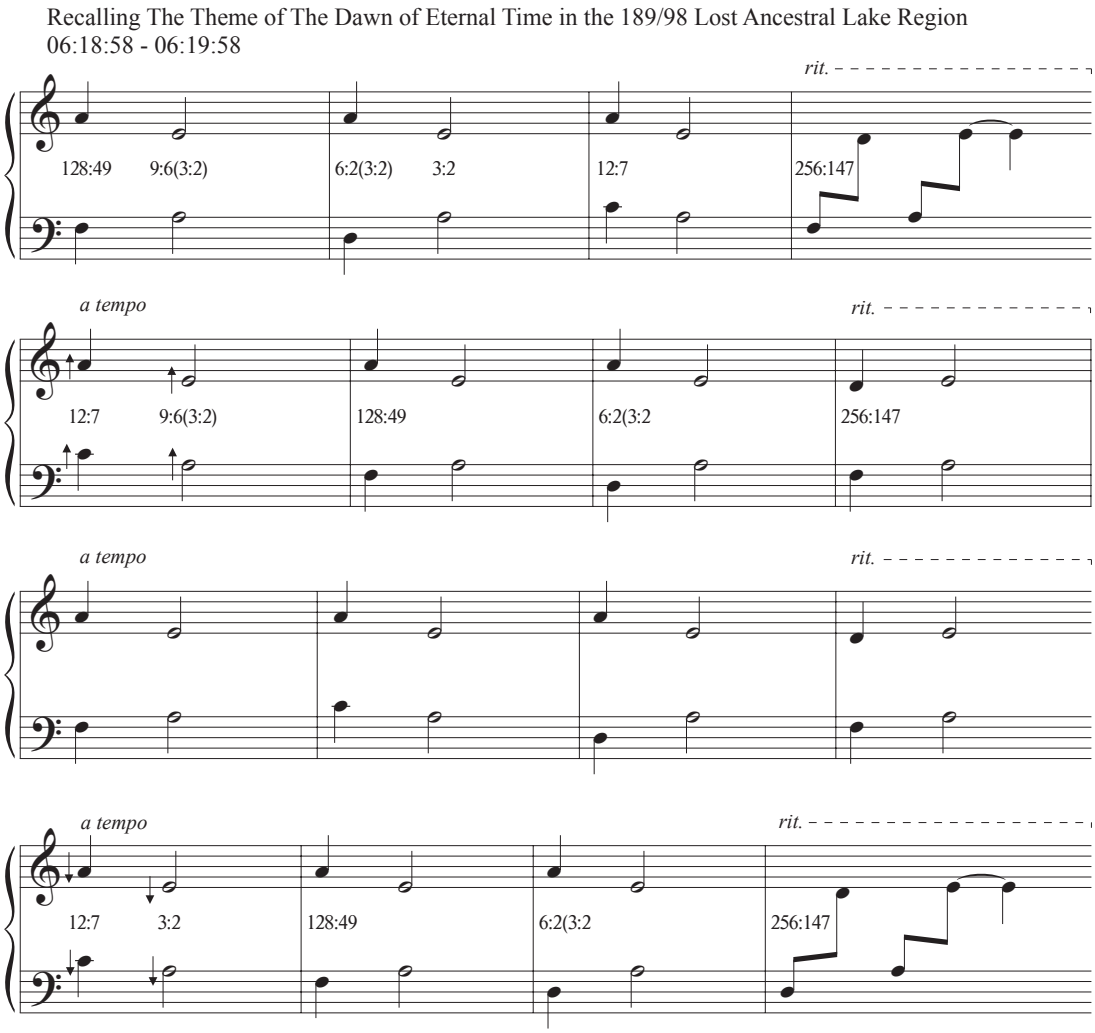
twice in a given phrase, where the idea is shifted to a new version of "D" that is a slight flat.[27] Young organizes pitches on the keyboard so that some intervals are extremely close together.[28] He could switch between two different types of G, or D, or A, by moving all of the intervals one-half step away on the piano keyboard. Furthermore, because of octave equivalency the themes can be fully transposed into these new slightly higher or slightly lower regions.

Although it is very difficult to discern, this is a form of transposition the composer perceivably would use throughout *The Well-Tuned Piano* in other types of themes. In that regard, the composer he demonstrates how his system of tuning is flexible between two modes that are extremely close to one another, yet operate within the same lattice and over the same fundamental 1:1.

The LALR TODET version is by far one of the most drastically varied because of its transposition by a fifth and in other instances by increments smaller than a half-step. The latter is a particularly illuminating moment in which the composer reveals a kind of magic trick. Furthermore, LALR TODET is the very last version of the theme the audience hears in the piece. At this moment it is in G, described as being in "The Deepest Pool," and ends with a forty-five second sustain of the lowest G on the piano and an F. Each version of TODET is related in some way, and this motif in particular stands out as one of the most transformative of them all.

[27] This is another aspect of Octave equivalency. That Young can transpose the theme down by a very miniscule interval and maintain enough intervals TODET to do an entire iteration of the idea slightly flat from previous ones.
[28] Jung Hee Choi, "La Monte Young , *The Well-Tuned Piano,*" in *The Well-Tuned Piano in The Magenta Lights (87 V 10 6:43:00 PM – 87 V 11 01:07:45 AM NYC)*, Just Dreams DVD 003 (2018): 36-49.

EXAMPLE 12



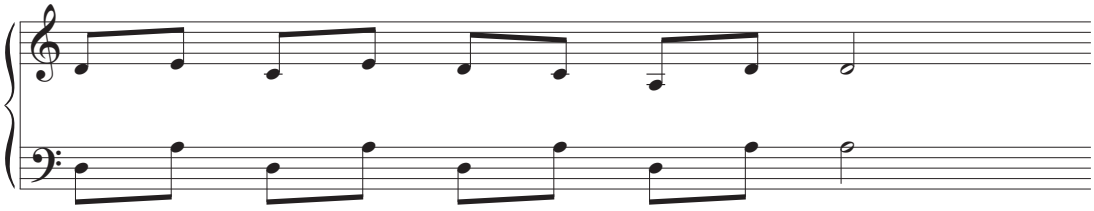
Other versions of “The Theme of The Dawn of Eternal Time”

The previous five versions of "The Theme of The Dawn of Eternal Time" represent primary ways in which the theme is presented. However, there are still several smaller fragments of themes, most in "The Opening Chord," that appear in other chordal areas. A few are hardly ever heard from again. One such theme, "Special Motif from The Theme of The Dawn of Eternal Time," is only heard once at 20:02 for about five seconds. It consists of eight intervals in even

eighth-notes, similar to CAD A in intervallic makeup, and can be found appropriately sandwiched between two such themes. Example 13 shows the one instance:

EXAPMLE 13

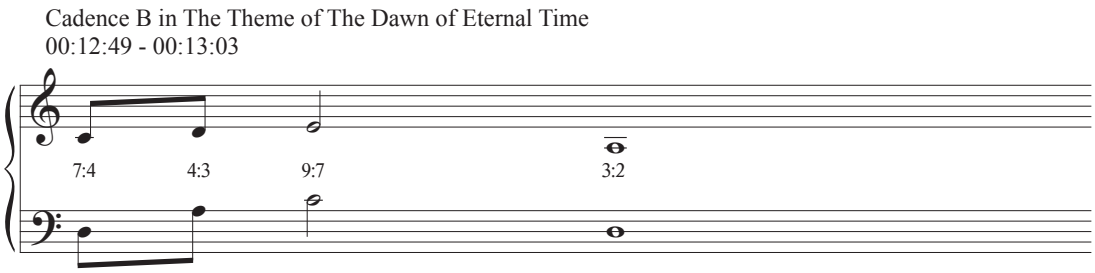
Special Motif from The Theme of The Dawn of Eternal Time
00:20:02 - 00:20:07



Contrary to Young's higher melodic lines in TODET, the "Special Motif" maintains a steady bass line that alternates between D – A. The higher line on the other hand leaps around in the beginning, descends to E – A, then leaps back up to D. The intervals generated from this moving upper voice center around A – E (3:2) in the beginning, and finally resolve on A – D (4:3) at the end of the line. This resolution to D and A appears to be a common cadential attribute in the versions of TODETs investigated so far.

A few other versions of TODET that appear in *The Well-Tuned Piano* are Cadences B, C, and D. Each of these versions happen mostly in "The Opening Chord," with some iterations being absorbed into other thematic areas throughout the rest of the piece. Cadence B is one such version that appears a few times throughout the work. It is most distinctive because of its brief progression from D – C (7:4), A – D (4:3), C – E (7:6), and finally to D – A (lower 3:2). This final dyad is particularly noticeable, as it only occurs at the very end of a line and almost always after those first few intervals. Example 14 is a fragment of CAD B at 12:49, which more accurately represents how it appears throughout the piece. A very quick first two intervals, followed by a slower last two intervals. This approach remains true in subsequent iterations in "The Opening Chord," and later in the context of SPR TODET.

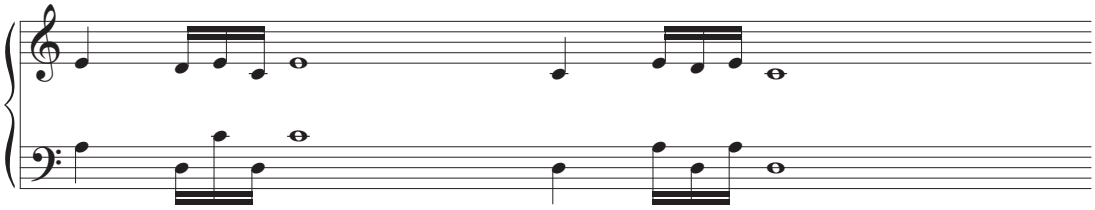
EXAMPLE 14



A much less frequent variant is "Cadence C in The Theme of The Dawn of Eternal Time," or CAD C that is only labelled four times, with a fifth time in the midst of SPR TODET (4:40:34). In both times the times CAD C occurs, shown in Example 15, and later on when it appears fragmented at 39:48, the theme has no consistent intervallic features other than it uses the same principal intervals found in TODET. Rhythm, however, remains consistent. Example 15 shows approximately a quarter-note, followed by three very fast permutations, and a final longer note on the end. These fast permutations make CAD C distinct. For example at 40:05 Young employs the same treatment of the passage, and it is true again in that fifth SPR TODET version mentioned before at 4:40:34. Overall, CAD C appears to not be as significant as some of the other versions, but is still quite distinct when it occurs in the *The Well-Tuned Piano*.

EXAMPLE 15

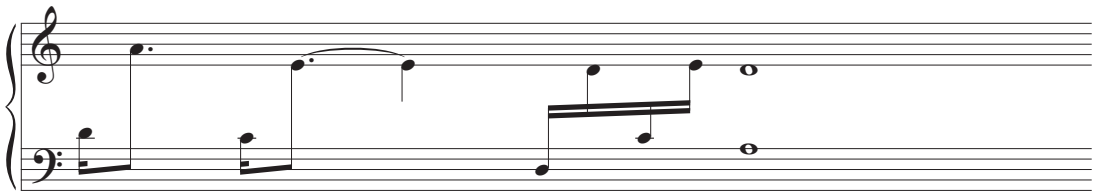
Cadence C in The Theme of The Dawn of Eternal Time
00:15:34 - 00:16:01



Even less frequent, with only three marked instances, is the "Cadence D in The Theme of The Dawn of Eternal Time." Shown in Example 19, CAD D largely resembles CAD A REF in both the content of its rhythm and intervals. The theme could be framed as a fragment of the latter motif, having only the first five notes of CAD A REF. Indeed, there is an iteration entitled "Cadence A in The Refrain from The Theme of The Dawn of Eternal Time (short version)" that contains basically the same intervallic and rhythmic content of CAD D. One difference might be that 40:54 contains both D4 - A5, an interval not yet seen in the piece. Otherwise, the theme mostly draws on material heard in other versions of TODET.

EXAMPLE 16

Cadence D in The Theme of The Dawn of Eternal Time
00:20:45 - 00:20:50

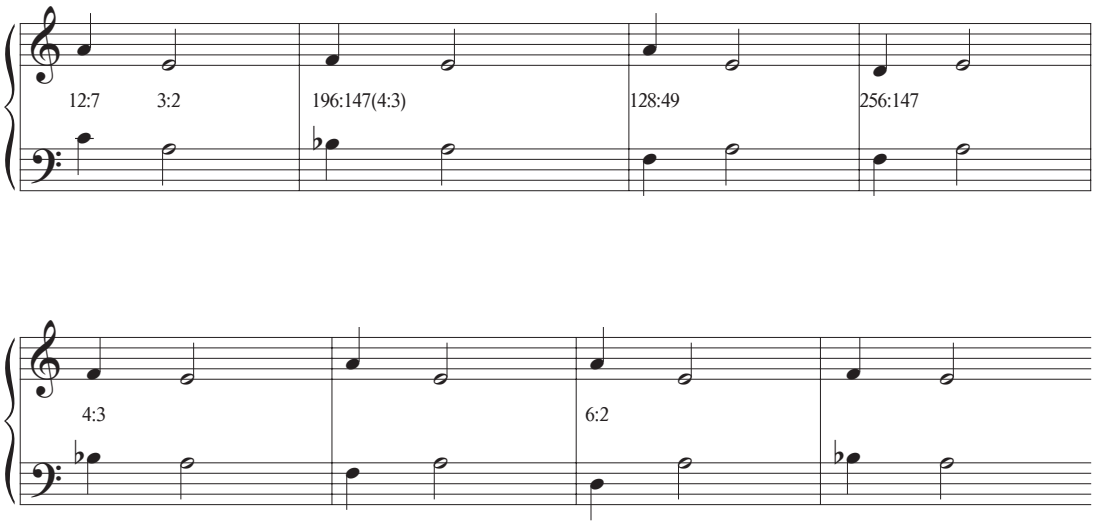


Towards the end of the piece, there are only really two versions of TODET that remain in play. LALR TODET is one, as discussed before, and it has a very close cousin named "Recalling The Theme of The Dawn of Eternal Time in The Elysian Fields" that includes much of the same treatment and content as the former. ELYSIAN TODET is not transposed over a G fundamental,

remains largely in D, but contains a specific note and new set of intervals that only appear in the confines of this theme. Example 17 is an excerpt of TODET "recalled" in the "Elysian Fields" at 06:02:35 that shows an addition of a B-flat (49:32) interval never seen before in TODET outside of the G transposition in LALR. Especially in the latter part of the variant, the B-flat is emphasized. Particularly special is the interval between F – B-flat (196:147 or 4:3), which only sounds in this last section of the piece. Other than this new B-flat, "The Theme of The Dawn of Eternal Time in The Elysian Fields" mostly appears to resemble LALR TODET when it is over the D fundamental. In one instance at 6:18:48, the theme actually transposes to the alternate D tonic I mentioned before in the discussion about LALR TODET. Young transposes the motif in this way twice in that frame of time. The actual makeup of this variant is mostly similar to REF TODET—the same general progression of intervals occurs in three-four time. While ELYSIAN TODET does have that added B-flat, which is significant in and of itself, it mostly draws upon materials and concepts seen before in *The Well-Tuned Piano*.

EXAMPLE 17

Recalling The Theme of The Dawn of Eternal Time in The Elysian Fields
06:02:35 - 06:02:51



Conclusion

Many different thematic variations materialize in *The Well-Tuned Piano* with a multiplicity of transformations. I chose to focus on TODET because of its significance as the opening of the piece and for the amount of recapitulations in various forms it garners. This is true, audibly, of many themes in *The Well-Tuned Piano* that have yet to be uncovered and dissected in the amount of depth here. My goal in this study was to establish TODET as one of the central themes for this work, but also provide a gateway into future studies of how Young develops his thematic materials, highlighting the processes by which the composer achieves such change. Details arise that reveal the depth with which Young varies them, such as shifting a bass line or intervallic relationship on beat two in REF TODET, or in the complete transposition to a new fundamental area as in LALR TODET. The idea that TODET is a central force in the piece rings somewhat true both because it resurfaces most often in Young's large-scale time and because of these transformations in which the identity of the theme is altered but the sensation of recapitulation never changes. In my interview with Michael Harrison, he pointed out how the pitches of "The Theme of The Dawn of Eternal Time" utilize the first several primes of the harmonic series, positioning it as the lowest point in Young's series of intervals that he could go. The theme is, quite literally, fundamental to the piece.[29]

[29] Harrison, Michael. telephone conversation with author, March 31, 2019.

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IN THE CLOUDS:

ARCHITECTURES OF INTENSITY AND RESPITE IN LA MONTE YOUNG'S 1987 DVD RECORDING OF *THE WELL-TUNED PIANO*

> …[The Well-Tuned Piano] employs a sophisticated large-scale formal approach that has significant evolutionary tendencies over audaciously longs spans of time, and which bring to the work not only a sense of grand design but all of tension and growth, dynamism, climax, and resolution…this is achieved through pitch structure as well as thematically.[30]

A vast architecture of interwoven materials exists at the core of *The Well-Tuned Piano*. From the first interval I continue to find myself struck by the nature of the sounds emanating from Young's instrument; no doubt the result of his revolutionary approach to tuning. Specifically, the composer's use of just intonation garners the most attention from scholarly studies, but another fascinating aspect of the piece materializes in the booklet notes of the two recordings on record: the 1981 Gramavision and the 1987 Just Dreams DVD. I investigate the latter for the purposes of this study.[31] Events in the piece are meticulously marked with a specific title and time stamp. A listener to the recording could read such annotations as a "score," and is thus an essential element for someone interested in studying the piece (the composer has yet to release a score, the work being largely improvised anyway. Flipping through pages and reading themes while listening to the work provides a wonderful guide for the attentive listener. A structure also begins to materialize that demonstrates a progression of themes, recapitulations, and variations. Coupled with the recording, a structure of energies also appears where Young

[30] Keith Potter, "La Monte Young," in *Four Musical Minimalists* (Cambridge University Press, Cambridge: 2000): 80.

[31] I focus exclusively on the 1987 DVD recording because it was Young's last performance, was re-released recently (2018), has been subject to little scholarly study, and according to the composer was his strongest performance.

carries the listener from slower thematic material to longer periods of transcendent material he calls “clouds.”

Notions of architecture do surface in studies about Young. The idea of a “grand design” that Keith Potter mentions at the beginning of this article surfaces every now and again in scholarship surrounding *The Well-Tuned Piano*. The focus of such analyses are on tuning.[32] Rightly so, as the composer’s development of tuning in the work is one of the most important features, not to mention the title itself. Part of this missing dialogue with form could have to do with the minimal amount of research devoted to Young’s gargantuan piece in the first place. In his seminal study of musical minimalism in the twentieth-century, Potter is one of few authors to take up a study on La Monte Young’s *The Well-Tuned Piano.* He is also not the first to speak to the composer’s ability to craft a large-scale structure with pitch and thematic material. Potter also highlights how the piece is important in the context of musical minimalism, improvisation and composition, and as a work for solo piano.[33] In the most comprehensive study of the composer to date, Jeremy Grimshaw points out how the work employs a “…dense network of motivic and harmonic interconnections…”[34] He highlights how well documented the work is probably due to the availability of recordings (many of Young’s works have not been released).[35] It stands as one of his few works subjected to analysis, with one of the most significant being the article by Kyle Gann that studies the 1981 recording. With but his ear and a tunable synthesizer, Gann uncovered Young’s system and compelled the composer to release *The Well-Tuned Piano*'s tuning to the public. He notes how the work "…may well be the most important American piano

[32] Kyle Gann, “La Monte Young’s *The Well-Tuned Piano,*” *Perspectives of New Music* 31, 1 (1993): 145; Keith Potter, “La Monte Young,” in *Four Musical Minimalists* (Cambridge University Press, Cambridge: 2000): 80; Jeremy Grimshaw, “Space Exploration, Part 2,” in *Draw a Straight Line and Follow It* (Oxford University Press, Oxford: 2011): 164.
[33] Potter, 80 - 88.
[34] Grimshaw, 164.
[35] Ibid., 143.

work since Charles Ives's *Concord* Sonata—in size, in influence, and in revolutionary innovation.[36]" Thus, it is innovative in terms of tuning, scale, design, and architecture as the article highlights.[37] Specifically, he divides the ideas of 1981 recording into two types: Thematic materials and Clouds.[38]

Both scholars, people in the composers' circle, and even Young himself stress the significance of *The Well-Tuned Piano.* Likewise, I have found the piece to be influential for me as a composer and how to develop and structure a total concert experience.[39] This notion of structure that these authors allude to, and the meticulous way that Young labels his materials with in the DVD booklet have spurred questions about the work's architecture, not so far off from the study of leitmotifs in Wagner as Gann mentions in his study.[40] Coming back again to Potter's quote, I seek to illuminate the nature of this "grand design," and what it entails from the specific titling of themes and time stamps found in *The Well-Tuned Piano* 1987 DVD booklet. The annotations reveal a connection between large-scale musical materials that both Gann, Grimshaw, and Potter highlight in their studies. This analysis uncovers a balance between intensity and respite emanating from the large-scale interaction of two musical materials, themes and clouds, and further. I interrogate what happens between these names and how they form phrases, periods, and how relationships are formed on the macro and micro-level scale.

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[36] Gann, 134.
[37] Ibid., 145.
[38] Ibid.
[39] In my interview with Michael Harrison, he talks about how the piece was a part of a larger-scale concert series running over eight weeks. The piece would be performed on Sunday of each week, the composer would then break Monday and Tuesday, study the recording on Wednesday, begin rehearsing Thursday through Saturday, and beginning the cycle again on Sunday. This led to an intense development of the work, the last of which is witnessed in Young's last performance ever of the piece on the 1987 DVD.
[40] Gann, 149.

Embedded in the fundamental architecture of *The Well-Tuned Piano* is a balance with what I call intensity and "relief."[41] Musical energy is amassed, diffused, and rebuilt once again. Thus, a large-scale conversation exists between thematic-based material and the sustained sonorities of the clouds; the former representing a point of respite for the pianist, while the latter demanding physical strength.[42] Clouds function then as an intense point within the piece, a balance to the more sparse thematic areas. However, these motivic-based sections allow Young to pursue his ideas along more traditional notions of thematic development that involve repetition, permutation, combination, variation, transposition, etc.[43] These two sides of the composer's material allow him to exhaust his musical ideas in single chordal area. He may spend an hour just in once such place. This macro-level architecture speaks to his control of such functionalities; between physical exertion (intensity) and respite (resolution/renewal/relief). As we shall see, the unfolding of individual themes is in constant flux and these two-larger forces spiral up from one interval to the next, pan out in the development of musical phrases, the placement of themes next to each other, and eventually to a palpable large-scale architecture. Michael Harrison, one of Young's protégé's and the only other person to perform the piece, noted in our interview the idea of *chiaroscuro* in drawing and painting.[44] As a painter explores contrasting colors of dark and light, La Monte Young does so using forces of intensity and respite, antecedent and consequent, density and sparseness, or in the case of this work, thematic sections and clouds.[45]

[41] Michael Harrison, telephone conversation with author, March 31, 2019.
[42] Ibid.
[43] Potter, 88.
[44] Harrison, telephone conversation with author, March 31, 2019.
[45] Gann, 157.

What is a tone cloud?

Clouds are one of the most innovative musical ideas coined by La Monte Young. There aren't very many occurrences—none are repeated—but they are one of the most pervasive textures throughout *The Well-Tuned Piano*. Defining what Young means by a cloud may reveal how these sections specifically embody idea of intensity.

In Young's early years, he was quite an accomplished saxophonist and improviser. Having studied with Leonard Stein at the Los Angeles City College in 1953, his skills as a composer and pianist began to take off as well. During this time he was also performing with various jazz groups in the city. The emerging composer was particularly drawn to blues, and began developing his own improvisational style with C minor mode progressions and his signature "chunk-ka chunk" way of playing.[46] Along with a reduced blues progression he formed his own *Young's Blues* style of playing, which is alluded to in *The Well-Tuned Piano* at times. However, Young abandoned the traditional twelve-bar blues structure and began experimenting with spending larger spans of time in what he calls a "modal drone."[47] This style of playing became characteristic of Young's recordings and fed into his improvisations on the sopranino saxophone. Specifically, this style involved playing rapid alterations of notes as fast as possible with the goal of creating a sustained sonority. One can hear this technique in recordings of "The Theatre of Eternal Music," a group the composer established to prove new avenues of tuning and drone-based improvisation. In a particular recording entitled *B-flat Dorian Blues*, the sopranino saxophone flies through a series of notes to generate such “sustained” harmonies.[48]

[46] Grimshaw, 24.
[47] Young, “Notes on *The Well-Tuned Piano*,” in *The Well-Tuned Piano in The Magenta,* 11; Grmishaw, 24.
[48] (https://www.youtube.com/watch?v=ZNdgv0Yxyi0).

All of this experience in Young's early years as a saxophonist, an improvisor, playing jazz, and experiments with the Theater of Eternal Music led to *The Well-Tuned Piano.* Clouds follow from this lineage of preoccupations. They are formed from one harmony and involve the rapid permutation of pitches at a voluminous dynamic, thereby generating a sustained sonority. When the *sostenuto* pedal on the piano is depressed, these clouds resonate as one sustained body of sound. Furthermore, the composer:

> …became aware of the development of a phenomenon which to my knowledge no other musician as ever presented. That is, I found that my fingers were synchronizing the rhythms of the hammers with the rhythms of the acoustical beats in such a way that it became a type of resonance system.[49]

This synchronization with the "acoustical beats" produces two effects. First is an optimized version of the sustained sonority. That is, Young maximizes the effects of these sounds by playing *to* acoustical beats. He found a way to actually create easy and optimal permutations to continue amplifying this effect.[50] Second is the emergence of the composite frequencies of two or more waveforms—a key aspect of cloud sections.[51] When two frequencies are added together, they produce a third sum-tone.[52] If only one of these tones is played, that frequency does not result. It is only with the combination of the two that such a magical sound materializes.[53] This phenomenon is central to the cloud sections of *The Well-Tuned Piano.* The composer notes how "Extraordinary acoustical beats became suspended in the air like a cloud over the piano, sometimes even filling the entire space during the energy accumulations of the

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[49] Young, "Notes on *The Well-Tuned Piano*," in *The Well-Tuned Piano in The Magenta,* 11.
[50] Harrison, telephone conversation with author, March 31, 2019.
[51] Young, "Notes on *The Well-Tuned Piano*," in *The Well-Tuned Piano in The Magenta,* 11.
[52] Clive Greated, "Combination tone," in *Grove Music Online* http://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000006170, (accessed April 18, 2019).
[53] If the frequencies 220 Hz and 660 Hz are added together—together they are a perfect fifth (3:2), which results with 220 x 3—then a combination tone comes about equal to 880 Hz. If octaves are represented by twice the number of vibrations as a fundamental (or the integer 2), then we divide 880 (2 x2) to get a resulting frequency of 220 Hz.

longer passages."[54] In Kyle Gann's analysis and live listening of the piece, he reported hearing things such as "foghorns, voices, bells, even machinery."[55] In my own experience with the DVD recording, I have heard slow-whistling-melodies emanate from the tone-cloud sections and sonorities that sound like a choir singing the same pitch. It is a remarkable effect, likely more evident in a live performance.[56] Another related phenomenon that Young produces in these clouds sections is the *virtual fundamental*. Such a tone appears if one creates a sine tone generator and produces the fifth, sixth, seventh, and eighth harmonics of a fundamental. Our ears automatically generate the fundamental of these waveforms.[57]

Both the tuning of the piano and the rapid permutative clouds are essential to the overall effect they have on the ears. The latter in particular emits an intensity also felt from the performer. Clouds are one of the most important components of this piece and in his entire *oeuvre*. To this end, I look now to the significance of clouds in context as passages of intensity embedded in the architecture. I focus on their interplay with themes, specifically "The Theme of The Dawn of Eternal Time."[58] TODET has the most iterations of a single theme in *The Well-Tuned Piano* and seems an ample opportunity for such a study of clouds and motivic sections.

Clouds, Themes, and the Large-scale Architecture

A few observations become clear about the clouds in this analysis. Firstly, they contain areas of the most dense musical material. By density, I mean articulations in quick succession.

[54] Young, "Notes on *The Well-Tuned Piano*," in *The Well-Tuned Piano in The Magenta,* 11.
[55] Kyle Gann, "La Monte Young's *The Well-Tuned Piano*" *Perspectives of New Music*, 149.
[56] The effect of the clouds is also where the use of drugs in conjunction with experience of Young's music comes into play. The composer is reported to have often partaken of *cannabis* regularly, even before performances. Persons attending likely also partook to amplify such effects.
[57] Grimshaw, 168.
[58] In another study, I focus on the importance of TODET in the piece and how a theme can be broken down. Whereas there I focus on make-up, here I focus on how context and function.

The beginning of *The Well-Tuned Piano* is less dense and these cloud sections act as a sharp contrast. The second observation became apparent in the process of this analysis. When I began placing the series of themes on a singular time-scale, I found how clearly much time each cloud occupies. Table 1 is a graphic analysis, with approximate lengths of time blocked off. There are very long periods in which a cloud takes place, and visualizing these lengths of time amplifies that effect further. Indeed, the second cloud in the piece, "Cloud in *The Magic Chord*," fills up a very large swath of time (about 38 minutes, as can be seen in Table 2). This is the single longest cloud in the whole piece. In subsequent chordal areas, one can see how clouds continue for a considerable period. This is true of "The Magic Chord," "The Magic Opening Chord," and "The Magic Harmonic Rainforest Chord," where more than half of the time is spent in a cloud. Other chordal areas spend a considerable amount as well. The "New Chord" actually contains the second longest cloud in the entire piece. In other sections a cloud occupies at least a third of the time spent on that chord.

On the other hand, two-thirds of *The Well-Tuned Piano* is spent in thematic material. TODET is an apt example for demonstrating these periods. Respite in this analysis refers to the thematic sections and any of these terms: rest, renewal, relief, low points, resolution etc. The idea of "relief" came about in my conversation with Michael Harrison about performing the piece.[59] I mentioned to him the process of uncovering an interplay between clouds and themes in *The Well-Tuned Piano.* That is, after times of high activity with the clouds where the listener is bathing in a continuous sound, there are also periods of thematic development and a rebuilding of energy. Young is either coming away from a cloud, or going toward one.[60] As someone who performed the piece itself, he described the thematic sections as being points of "relief," where

[59] Harrison, telephone conversation with author, March 31, 2019.
[60] Ibid.

the pianist must literally regather their energy. Themes function as a musical contrast for the listener, a chance for the composer to develop material, and as points of rest for the performer. On the other hand, the idea of "strength" describes cloud sections and brings to mind other descriptors including high points, the extreme, vigorous, with high amplitudes, density, etc. They require intense physical demand from the performer. Furthermore, there are no real breaks in a cloud section. Thus, they are a period of tension and intensity for the performer of the work who is required to play extremely fast permutations of notes at a loud dynamic for a long period of time. The listener is then subjected to sound without pause, opening up as well the possibility for transcendent and meditative experience.[61]

Looking back to Table 1, the analysis demonstrates periods of clouds and themes placed on one time-scale with line representing an hour of time. There are ten cloud sections in *The Well-Tuned Piano* and nearly every chordal section has its own, just as each section has a series of distinctive themes. A few observations come to mind. First the composer never starts a chordal section with a cloud, nor does he end any of these areas with such, suggesting that clouds require time. Such energy must be built from a point of rest over a low period of time. Indeed, Young uses intersperses themes with names such as "Intro to Cloud," or "Premonition of The Cloud in The Opening Chord" into a section to signal the move towards a period of intensity. These pre-clouds are ripe with tension, contain a regularly established pulse and contrast the more sparse thematic material which surrounding them. An analogy of a magnifying glass comes to mind in reference to pre-cloud material as the composer lets us hear a slowed versions of the permutations and combinations of notes from cloud sections. A second observation proceeds directly from the first: intense periods are *immediately* complimented by sparseness. Energy is

[61] Ibid.

suddenly released, the opposite of Young's approach to cloud sections. These sparse thematic sections are much quieter, drawing the listener back inward, and allow the performer to relax briefly. Again, two thirds of the piece are spent in these less intense passages (pre-cloud materials included in that category since there are periods of rest in between).

One last observation: Young tapers off the amount of time spent in a cloud section. For instance, Young spends a considerable amount of time in "Cloud in The Magic Chord," but for "Cloud Deep in The Elysian Fields," or "The Ancestral Böse Boogie," there are only a few minutes; the latter being little over a minute. Further, if one adds the blocks of time spent in these sections together, it becomes clear that the proportion of time spent in the clouds is far less than the amount of themes. That is, the proportion of intensity to respite is approximately 1:3. This ratio becomes especially interesting in on the microscopic scale. I turn now to how these contrasting entities filter down from larger thematic sections to periods to phrases and even to the interaction between two intervals.

TABLE 1

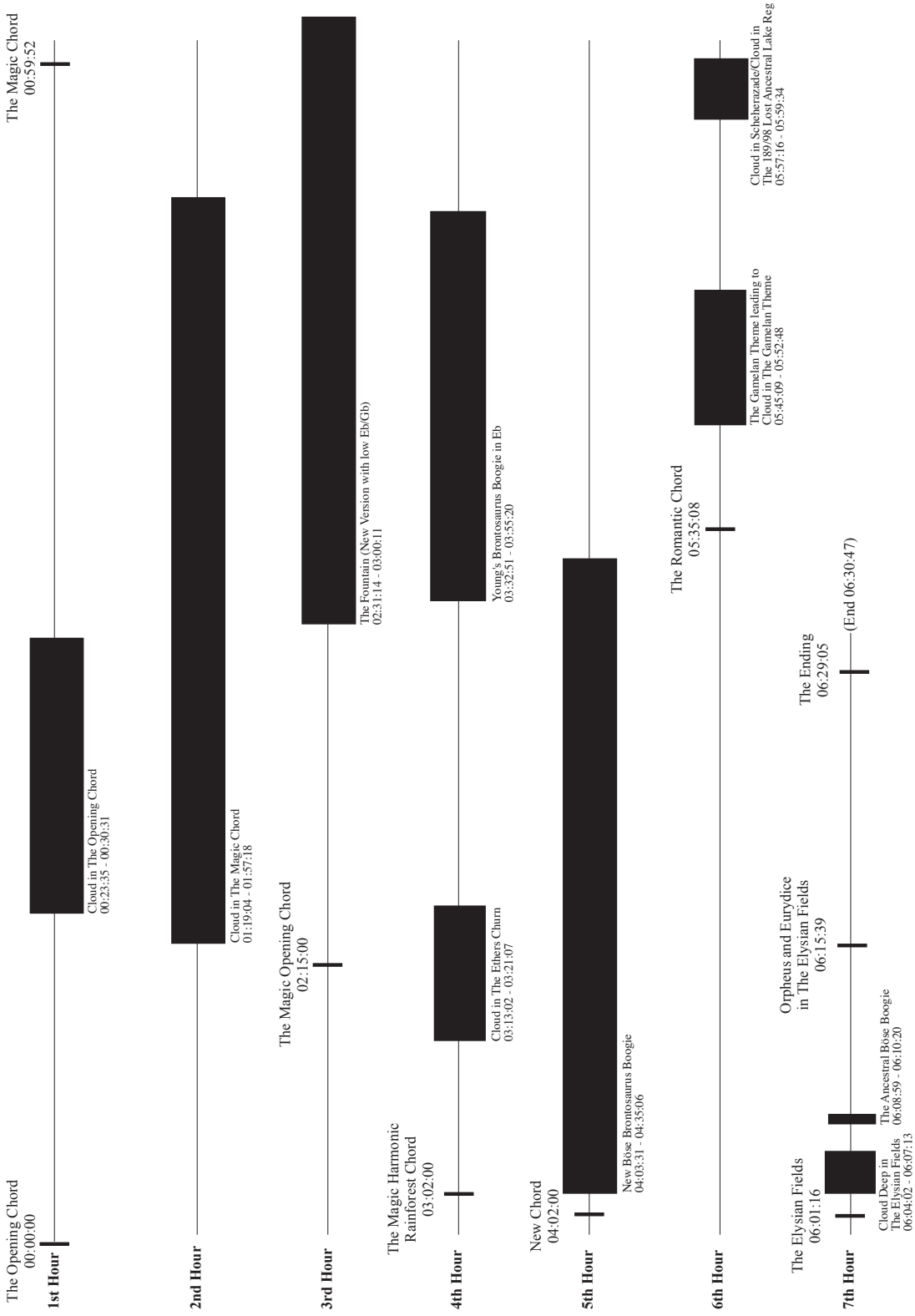
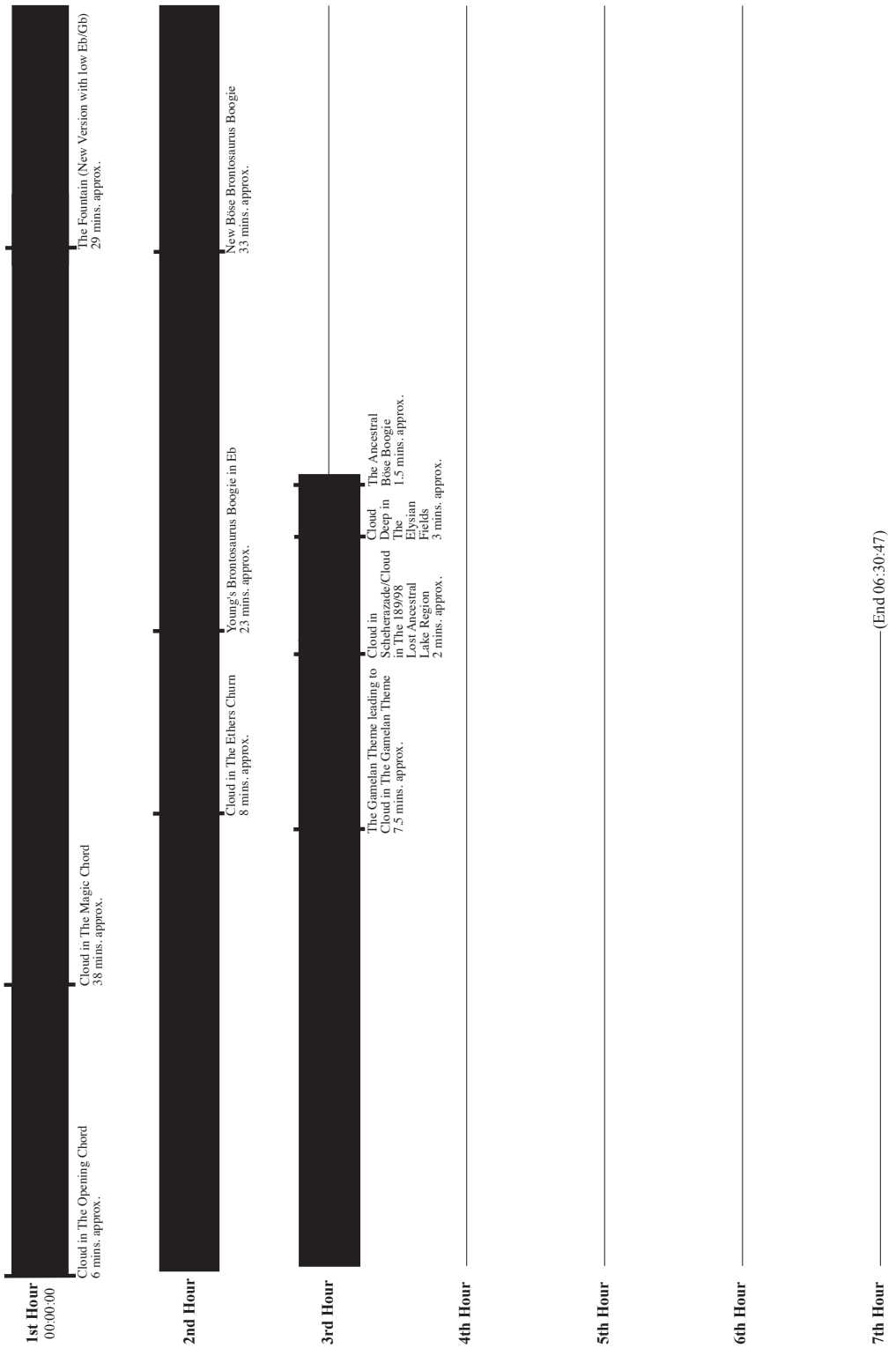

The Opening Chord
00:00:00
1st Hour
Cloud in The Opening Chord
00:23:35 - 00:30:31
The Magic Chord
00:59:52
2nd Hour
Cloud in The Magic Chord
01:19:04 - 01:57:18
3rd Hour
The Magic Opening Chord
02:15:00
The Fountain (New Version with low Eb/Gb)
02:31:14 - 03:00:11
The Magic Harmonic
Rainforest Chord
03:02:00
4th Hour
Cloud in The Ethers Churn
03:13:02 - 03:21:07
Young's Brontosaurus Boogie in Eb
03:32:51 - 03:55:20
New Chord
04:02:00
5th Hour
New Böse Brontosaurus Boogie
04:03:31 - 04:35:06
The Romantic Chord
05:35:08
6th Hour
The Gamelan Theme leading to
Cloud in The Gamelan Theme
05:45:09 - 05:52:48
Cloud in Scheherazade/Cloud in
The 189/98 Lost Ancestral Lake Reg
05:57:16 - 05:59:34
The Elysian Fields
06:01:16
7th Hour
Cloud Deep in
The Elysian Fields
06:04:02 - 06:07:13
Orpheus and Eurydice
in The Elysian Fields
06:15:39
The Ancestral Böse Boogie
06:08:59 - 06:10:20
The Ending
06:29:05
(End 06:30:47)

TABLE 2

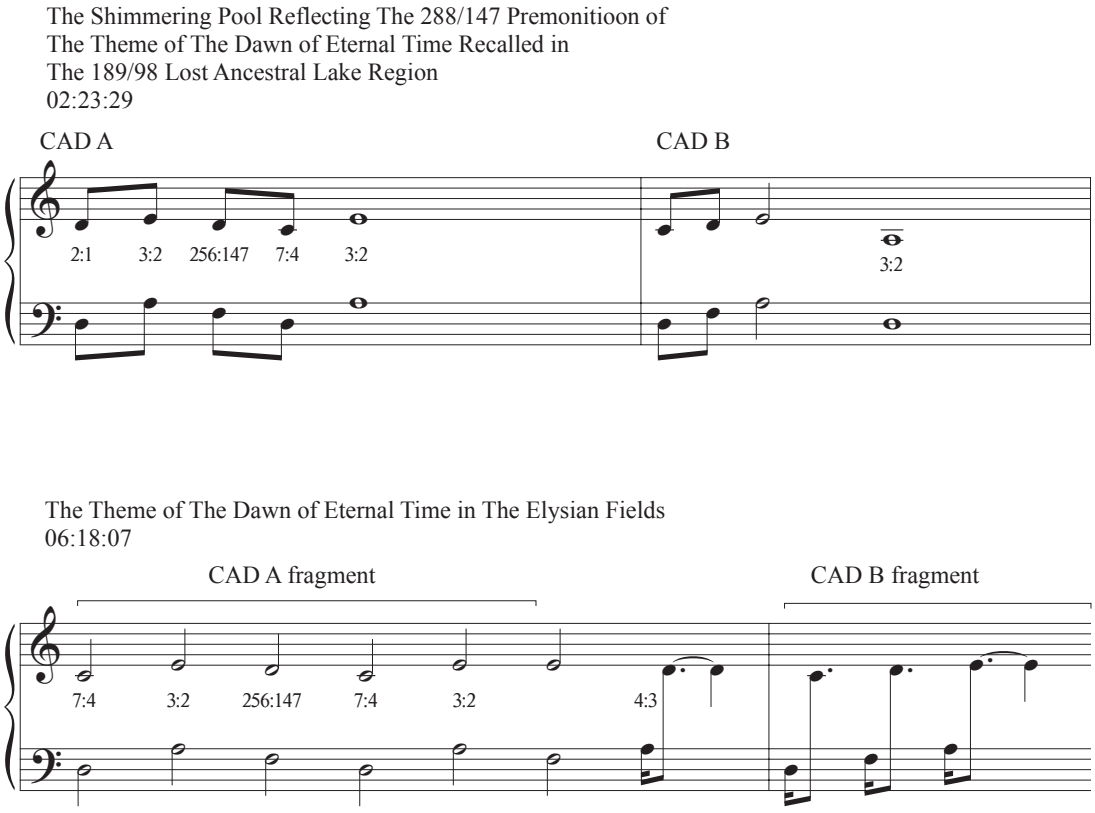

1st Hour
00:00:00
Cloud in The Opening Chord
6 mins. approx.
Cloud in The Magic Chord
38 mins. approx.
The Fountain (New Version with low Eb/Gb)
29 mins. approx.
2nd Hour
Cloud in The Ethers Churn
8 mins. approx.
Young's Brontosaurus Boogie in Eb
23 mins. approx.
New Böse Brontosaurus Boogie
33 mins. approx.
3rd Hour
The Gamelan Theme leading to Cloud in The Gamelan Theme
7.5 mins. approx.
Cloud in Schéherazade/Cloud in The 18/9/98 Lost Ancestral Lake Region
2 mins. approx.
Cloud Deep in The Elysian Fields
3 mins. approx.
The Ancestral Böse Boogie
1.5 mins. approx.
4th Hour
5th Hour
6th Hour
7th Hour
(End 06:30:47)

Periodic Structures of Intensity and Respite

On a macro-level scale, Young deals with the notion of energy through the interplay between clouds and themes. He achieves this through balancing the amount of time spent in each section, more in themes and less in the clouds. Although, it may be mostly intuitive in the concert, the composer has spent so much time developing the piece that areas and events seem quite calculated. The opposition of dark and light, intensity and respite, antecedent and consequent plays out within thematic areas, and I investigate such musical constructs through the lens of TODET.

The composer takes great care naming themes. At times they are quite colorful, but also tell something about the make-up of the musical material itself. The specificity of this naming scheme changes as it is "recalled" in different chordal areas, but the literal theme itself is heard clearly. “The Refrain from The Theme of The Dawn of Eternal Time”(REF TODET) is perhaps the most prominent of these, but the “Cadence A in The Theme of The Dawn of Eternal Time” (CAD A) and “Cadence B in The Theme of The Dawn of Eternal Time” (CAD B) are also quite common to hear. At 2:23:29 is a version in the “Shimmering Pool…” where CAD A and CAD B appear right beside each other. Example 1 is direct iteration of these cadences and a similar version more transformed in “The Elysian Fields” at time stamp 06:18:07 (both unlabeled in the booklet).

EXAMPLE 1

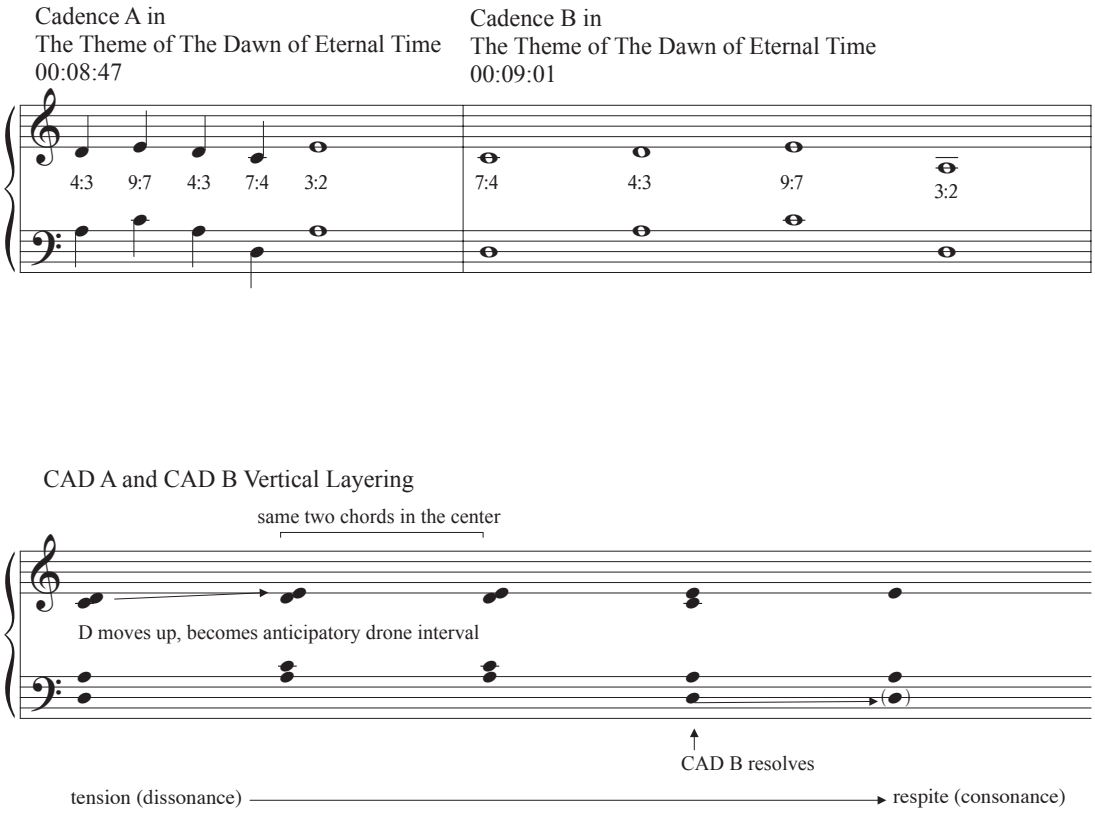


One explanation for why they go unlabeled may be they are absorbed into a meta-version of TODET, which draws primarily on material from "The Refrain." The theme fragments lose their individual identity over time as they are "recalled" less often and in different chordal contexts. Because there is so much more material to develop, the motive becomes a point of reference in the music; moving it in a new direction. This explanation does not detract from its importance in the piece. Rather, it shows how far less imperative the naming scheme is over the recognition of a distinct set of intervals that bring about the memory of TODET. Furthermore, if Young considered it important for us to know exactly when CAD A or CAD B came back, would he not inform us? Perhaps he leaves that endeavor for listeners. I think this may lend to

the argument that his priority is that idea of a meta theme. However, let us turn back to the first iterations of these cadences and consider their relationship to one another; reading that relationship through the lens of intensity and respite.

One of the first and most consistent thematic progressions from "The Theme of The Dawn of Eternal Time" to appear in *The Well-Tuned Piano* is the move from CAD A to CAD B. In "The Opening Chord," antecedent and consequent phrases emerge between the two cadences. For instance, in Example 2 the music begins to take on a more rhythmic shape with CAD A establishing a consistent pulse followed immediately by CAD B. As a first observation, the two phrases compliment each other sonically. CAD A's motion proceeds evenly at the beginning of the phrase, and becomes more open on the fourth interval D – C (7:4). Furthermore, it ends on A – E (3:2), a more traditionally more dissonant interval in our Western classical minds. CAD B is a contrast, starting lower and proceeding upward motion followed by a dip down again. In Example 2, I have presented the pitch material of the theme layered on top of each other. The cadences fill out most of the harmonic content found between the two cadences and in the “The Opening Chord” as a whole with beat one consisting of D – A – C – D, beat two of A – C – D – E, beat three with those same pitches, the fourth beat with D – A – C – E, and the final beat ending on an even layering of D – A – E. A more "consonant" sonority appears at the end. Because CAD B contains the lower D – A (3:2) it is perceived as such. One might even suggest the comparison with a perfect authentic cadence in traditional music theory where the last chord is in root position. Furthermore, in the context of this analysis, and marked in the latter portion of Example 2, is the linear unfolding of tension/intensity/dissonance and respite/renewal/consonance.

EXAMPLE 2

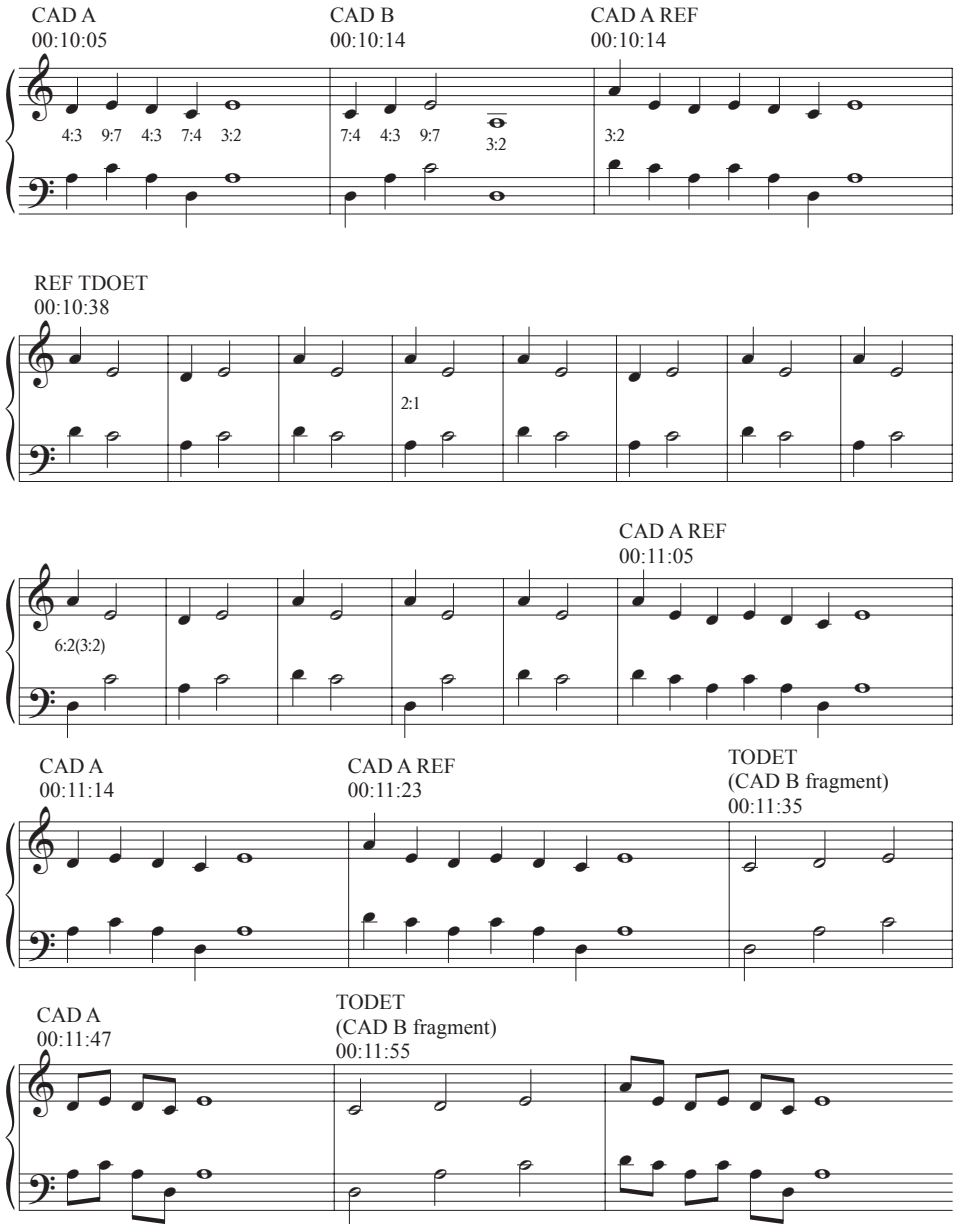


Established so far is how CAD A and CAD B are compliments of each other sonically, but there is another way in which they proceed musically which solidifies this notion through repetition—the generating of tension and expectation. If a passage is heard once the listener might guess that this passage will be repeated a second time. After the second iteration, one might venture to guess there will likely be a third repetition, and this is where composers make interesting choices. One could alter that third instance in some way, perhaps, to pique the listener's interest again. They could remove and replace it with something similar. This is the process of variation Young achieves with the CAD A to CAD B thematic progression. Example 3 is a transcription nine minutes into the piece. The first iterations of the phrase occur at 8:47

(the first CAD A) and there is a second almost exact repetition of the two cadences shown at 10:05. When CAD A reappears at 11:14 once again, it is not followed by CAD B, but by CAD A REF—the theme that also precedes it. Immediately after that very similar iteration of CAD A, follows a fragment of CAD B labelled simply "The Theme of The Dawn of Eternal Time." The musical materials for this motif are actually the same as the first three intervals of CAD B. Young deceives the listener. By proceeding from CAD A – CAD A REF – CAD B, the original thematic progression is transformed. The phrase as a whole is infused with tension, or intensity, by being incomplete. He then repeats almost the same phrase immediately after: CAD A – TODET – CAD A REF then to the first "Premonition Cloud in The Opening Chord," or pre-cloud material. This latter move points back to the idea of building energy and diffusing it towards the cloud sections. In other words, a more period-based structure of intensity and respite. The energy of the piece is building toward something new. By setting up the cadences in the beginning, Young creates tension in the phrase later on by making them "imperfect;" or unresolved (the chord is no longer in root position). One more aspect of this sequence makes it important, and that is the consistency with which it appears in context of "The Theme of The Dawn of Eternal Time." It is not always labelled, but audible nonetheless. Beyond these first iterations, we see a progression of CAD A to CAD B at 20:07, and 40:20—still within "The Opening Chord." Later on at 2:23:29 and under the guise of "The Shimmering Pool…" version of TODET, CAD A and CAD B are heard once again. Under the same chordal area, it is also heard at 3:05:04 as well. This idea of antecedent and consequent phrases are something Young alludes to in the names of some of the themes themselves, but as demonstrated here, there are

sonic aspects of the themes that highlight this idea[62]. Two themes balancing each other within a thematic progression is a common instance throughout *The Well-Tuned Piano*.

EXAMPLE 3



[62] "The Magic Chord" actually uses such a naming scheme. Kyle Gann also points to how Young frames his themes as such in his article; Gann, 152.

The progression from CAD A to CAD B is one of the more commonly recurring, but one of the most frequent variations is REF TODET. Each iteration of TODET throughout *The Well-Tuned Piano* is likely related to or influenced by the ubiquitous "Refrain."

Back to CAD A and CAD B: those are the first themes the listener hears in the piece that have more motion and provide a more definable phrase structure. With CAD A, I establish a cycle of motives that ends with some variant of REF TODET, and restart again in CAD A. Example 1 is an excerpt of my transcription from "The Opening Chord." The progression of motives begins with the interaction between CAD A and CAD B proceeding to CAD A REF TODET. This occurs starting at 8:47 with CAD A, and again at 10:05. The progression is shown as follows: CAD A – CAD B – CAD A REF. There is an alternate version of this as well starting at 11:47: CAD A – TODET – AD A REF where TODET in this case is actually a fragment of CAD B as well (the last interval is missing). This sequence of three-cadences establishes a consistent progression in the opening section, which Young then varies throughout. Sometimes he fragments them, as seen with CAD B, other times he inserts one of the cadences sooner such as with CAD A REF at 11:14. In further instances he introduces an entirely new theme that constructs a series of progressions. REF TODET is the one part of these themes that is consistent in its use. It is hardly ever fragmented. By that I mean it establishes a very steady pulse in three-four time from which it does not stray and consists of the same basic intervallic content. It always appears as some type of "whole" phrase and occupies more time than any other TODET variant.

In the context of this opening sequence, REF TODET can be seen appearing at the end of a thematic progression, which is as follows from 8:47:

CAD A - CAD B - CAD A REF - REF TODET

Immediately afterwards is the exact same progression with a more developed REF TODET, starting at 10:05:

CAD A - CAD B - CAD A REF - REF TODET

After setting up this series of expectations however, with such direct repetition of the themes, Young moves to change up the progression at 11:05 and thwart expectations in the following:

CAD A REF - CAD A - CAD A REF - TODET (CAD B) - CAD A - TODET (CAD B) - CAD A REF

The music then moves into the first "Premonition" of a cloud. This whole progression however from the beginning establishes a connection between each of these themes. Those exact repetitions set up a consistent an architecture. After the brief "Premonition," the listener hears a version of CAD A REF (which is actually labelled REF TODET in the booklet) moving to CAD B, to REF TODET, to CAD A REF. So the same sequence of themes still takes place, with slight modifications.

One other consistent feature of this progression is the continual development of CAD A and REF TODET throughout the entire piece. In "The Opening Chord" in particular, these two themes seem to always be linked in some way, whether directly or through its variant (CAD A REF being a variant). This connection is apparent in the examples mentioned, but continues at 14:13 where REF TODET is a fragment of CAD A REF. In another case, the two are reversed at 36:55. A very long iteration of REF TODET is followed by CAD A REF at 39:18. Even one the last repetitions of REF TODET at 41:54 is followed by this variant.

In the rest of the piece, CAD A often goes unlabeled, but one can still hear it happening within the context of a TODET variant such. For example, at 2:19:39 "The Shimmering Pool…" or SPR TODET, is heard the last four notes of CAD A. The last intervals of that cadence are repeated in a sequence; the bass line shifting occasionally. This is the first time in an hour and a half that TODET is heard, and the repeated fragments of CAD A eventually build to a more stable iteration of TODET at 2:20:21. Three minutes later is a similar occurrence which is similar to the whole sequence that recurs in "The Opening Chord:"

CAD A - CAD B - SPR REF TODET

Again, each of the cadences are unlabeled for the most part. However, there is one more clear instance at 3:05:04 clearly labeled. This is the final iteration of TODET in this section and is also the last time the individual cadences are clearly stated in the booklet:

SPR CAD A - SPR CAD B - SPR REF TODET

One last aspect of this progression is the fragment of CAD A (the last four notes) that reappear in the piece. I already pointed to the one instance in "The Shimmering Pool…" but this variant actually begins to appear more towards the end of the piece. At TODET LALR 05:55:21, there is a similar iteration to SPR TODET where the last four notes of CAD A build toward REF TODET. Neither of the themes are listed in the actual title. The theme is also transposed down by a fifth to the key of G, and this same exact sequence of events is mirrored in the last iteration of TODET heard in the entire piece at 06:27:17. However, instead of moving into REF TODET, Young keeps only the fragmented version of CAD A.

This compositional choice suggests three characteristics in terms of energy. First, that the piece is coming to a close, there is no move to REF TODET, and therefore no more places *to* move. Two, that the whole TODET theme is a malleable substance in the first place. That we only recognize it because of the many times the intervals have been repeated because of the intervallic relationships being the same but and also because of REF TODET. That the precedent of repetitions set at the beginning still play out in the rest of the piece. Those opening sequences answer the question of why they are so effective to return to in the beginning, middle, and end of the piece. Lastly, the architecture of *The Well-Tuned Piano* is based on these fundamental modes of repetition and transformation through such periodic structures. Both on the large-scale to periods to phrases there is a dialogue between energies of tension and resolution. This structural design cascades downward from the interaction of clouds and themes, to the interactions between thematic and pre-cloud material to thematic sequences to cadences.

"Grand Design" on the Microscopic Scale

I probe further this notion of contrast between intensity and relief with one more aspect that can speak to *The Well-Tuned Piano*'s "grand design" Keith Potter mentioned. I continue to the extreme, turning to the fundamental interaction between sonorities in a given theme. Such a phenomenon could be read from the simple unfolding from REF TODET. The last example shown below demonstrates how the architecture of tension/intensity and respite/renewal exists deep in the piece's framework and proceeds down to the sequence itself. Example 4 is an iteration of REF TODET and exhibits how further levels of this interaction take shape. The arrows represent a linear unfolding of intensity or progressive tension. On the other hand, the words "respite/renewal" highlight such a point of renewal on a more open interval. The same

macro-architecture carries over to individual points in the theme and the shape of the theme itself. Furthermore, REF TODET often proceeds from a slower tempo to a faster one in the course of the theme's unfolding. At the point of the faster tempo, one of two things normally happens. First, the theme proceeds immediately into a faster passage or one with a more regular eight-note rhythm. The first instance of REF TODET in "The Opening Chord" such a move as it proceeds into the "Premonition of Cloud in The Opening Chord," thereby signaling growth towards a cloud.

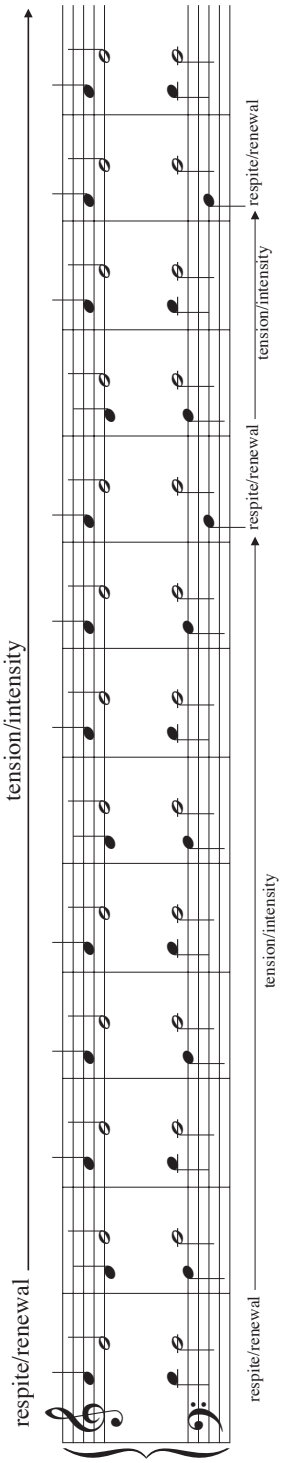
One could also read REF TODET as an embodiment of *The Well-Tuned Piano*'s architecture in sense. Within a single phrase exists balance between "dark – light," respite – intensity, consonance – dissonance, antecedent – consequent, and tension – renewal. Further, a microscopic reduction of the piece to a single phrase in conjunction with Young's preoccupation with intervals suggests such a correlation could exist between individual sonorities. Indeed, such a pair of intervals in REF TODET is receptive to such an analysis. Looking to Example 5, I remind the reader of REF TODET's components: three-four time, a changing interval on beat two (in the bass specifically), and a static interval on beats two and three. This latter notion in particular suggests that within discrete bars (from one measure to the next) is a conversation between antecedent and consequent intervals. The sound representing respite are read as the ones with a consistency from bar to bar on beats two and three; also they are somewhat more consonant. In this iteration that interval is C – E (9:7), but in other instances it changes to A – E (3:2). Intervals of intensity are then represented by beat one, changing from one bar to the next. Just like with a larger phrase, the relationship between these two intervals is represented linearly with an arrow that shows a continuity of energies that change from points of rest to tension building.

I have one last thought for the reader. Flip back to Table 2 where the clouds are jammed together into one block, showing the ratio of clouds to themes. Just as the interval of intensity (and chance) occupies 1:3 of a single measure in REF TODET, so do clouds occupy approximately 1:3 of time in the whole time span of the piece.

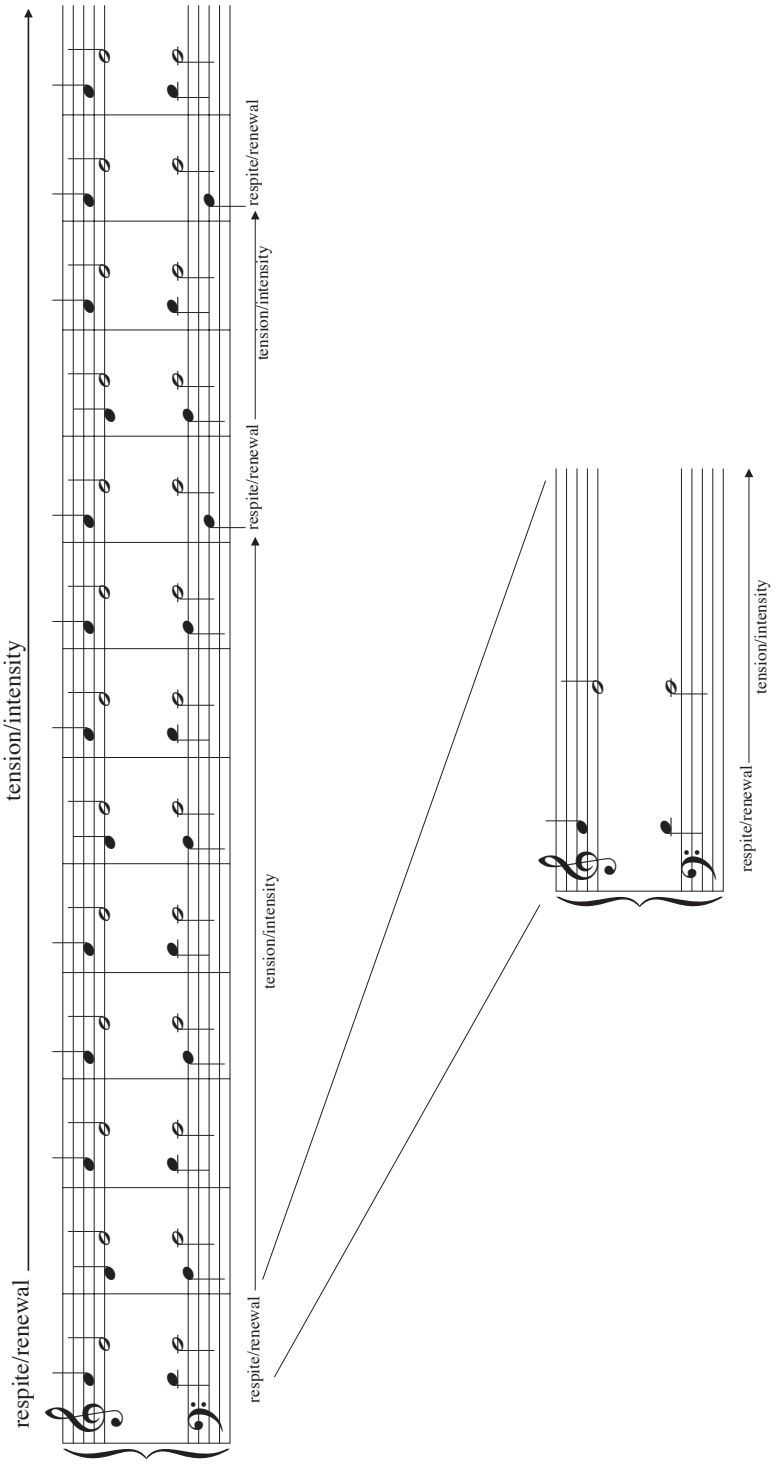
The entirety of this analysis demonstrates how from the most fundamental interaction of two intervals, the architecture of *The Well-Tuned Piano* is read as a linear progression of contrasts. Once again, this idea of balance between intensity and respite carries from the microscopic level, the interaction of two intervals, all the way up to the large-scale progression from thematic material into the intense cloud sections. Physicality is involved as well. The composer rests on the drone intervals of beats two and three of REF TODET in a similar vein to the thematic sections; a counter to the intensity of the clouds to beat one of a measure.

The idea that Young is building tension and release from a pair of intervals also speaks to the importance of tuning as a fundamental force in *The Well-Tuned Piano*. It is worth recognizing that because the work is improvised, the details of this structure may change from performance to performance. However, because these forces can be read from different points of construction in the piece, that aspect may be consistent from one performance to the other. Ideally, this study suggests a path to such analyses in other recordings. Performances on record before this 1987 performance may contain themes that follow each other and interact differently, but the fundamental idea of the material highlighted throughout shows how Young's consistent ability to develop his material in ways beyond what is merely heard on the surface of *The Well-Tuned Piano*. The composer's "grand design" operates on many different scales, large and small, within the deep architecture of this massive work.

EXAMPLE 4


tension/intensity
respite/renewal
respite/renewal
tension/intensity
respite/renewal
tension/intensity
respite/renewal

EXAMPLE 5


tension/intensity
respite/renewal
respite/renewal
tension/intensity
respite/renewal
tension/intensity
respite/renewal
respite/renewal
tension/intensity

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TWENTY-ONE NOTES WITH FOURTEEN INSTRUMENTS

A Dissertation
Presented to the Faculty of the Graduate School at
Cornell University
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Musical Arts

by
Barry Shelton Sharp
August 2019

TWENTY-ONE NOTES WITH FOURTEEN INSTRUMENTS

Barry Shelton Sharp, D.M.A.
Cornell University 2019

The amount of pitches I chose for *Twenty-one notes with fourteen instruments* (2019) was constantly in flux throughout the compositional process. I couldn't, for the life of me, choose which was the correct amount of notes to work with. I struggled with defining the concept of what a "note" actually even means. Is a note fixed in pitch space? That is, if you strike middle C on the keyboard, is that the same as striking the C an octave above? Or are these different altogether.

It is worth clarifying that an octave is a tone which vibrates twice the number of times as the octave below it. To me, that means they are different. As such, there are twenty-one notes in this piece in the sense that the octave doublings are counted as separate tones. By simply shifting a pitch—or a frequency if you will (I certainly will)—into a new octave an entirely new set of vibrating tendencies surface from that note's vibration in the room, within the instrument, and in proximity to other instruments.

Beyond defining notes, I do contemplate other subjects in life and I would like to share two other preoccupations that are relevant to this piece. First, I am investigating how to generate varied experiences within a performance situation. Many of my recent works employ "private tunings ambiences" that play through the performers headphones. I use a specific frequency to create a continuous sound in the performer's ear, and when they tune to this sound they have a different experience than anyone else in the room. They hear the sound of their instrument interacting with sounds in their headphones. You and I on the other hand, hear the collective

product of these musicians as they carry on through their own private performance. To me, each of these is a special experience, and I value that diversity.

I am also interested in stasis. Mainly, I do not believe it exists. Forces of nature, sound included, are constantly in motion. We are so impatient as human beings that we cannot possibly allow ourselves to slow down and attune to the world around us, nor can we comprehend any other sense of time beyond what we know. Stasis is a ridiculous word we invented (and certainly not the only one). *Twenty-one notes with fourteen instruments* (2019) lasts precisely twenty-two minutes.

BIOGRAPHICAL SKETCH

Barry Sharp seeks to create an environment of inclusion and experimentation through new dynamics between performers, composers, and audiences. His works often develop out of a specific sound world from which he sculpts a landscape of harmonic, melodic, and textural ideas. He is interested in how musical experiences vary between performers and listeners, given the way these landscapes are constructed and executed versus how they are perceived. Barry has worked with ensembles such as Duo Helix, Amalgama, sTem, JACK Quartet, International Contemporary Ensemble, Bienen Early/Contemporary Vocal Ensemble, [Switch~ Ensemble], Arditti Quartet, the Princeton Singers, OSSIA Ensemble, Un/Pitched, Ithaca New Music Collective, Cornell Orchestras, and the Cornell Chamber Singers. Barry performs with composer Sergio Cote in the experimental duo *etc,* [ee-tea-see] where they pieces through an experimental, rebellious, and democratic approach to sound. Barry previously studied music at Murray State University (BM) and the University of Iowa (MA).

ACKNOWLEDGEMENTS

I would like to first thank my composition professors Kevin Ernste and Marianthi Papalexandri Alexandri for their invaluable mentorship during my time at Cornell University. I thank Chris Kim, Stephen Spinelli, and James Spinazzola for supporting and conducting my work through many different projects. My thanks go to Benjamin Piekut for his counsel and seminar on New York Experimentalism that opened my eyes to so many more artistic avenues. I extend a huge thank you to Sergio Cote for encouraging me to dare myself and for the infinite conversations we've had about art, music, capitalism, and experimentalism.

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TWENTY-ONE NOTES WITH FOURTEEN INSTRUMENTS

(2019)

Composed for the Cornell University Festival Chamber Orchestra
with James Spinazzola (conductor)

INSTRUMENTATION

Alto Flute

English Horn

Clarinet in B-flat

Contrabassoon

Horn in F

Trumpet

Trombone

Sine Tones (Percussion)

Piano

Violin I

Violin II

Viola

Cello

Double Bass

Duration: 22 minutes

Score is transposed

PERFORMANCE INFORMATION

This piece invites performers to create a collective body of energy through an intense listening situation. Your sound interacts with two worlds: the one of the private tuning sonority, and the composite sound generated with other ensemble members.

1. Each performer needs an audio device, headphones, and downloaded audio file of each drone. Make sure to switch the file to “offline mode” or find a way to save it to your device. The experience of playing with this audio file running through your headphones is crucial to the piece.

2. The conductor is tasked with balancing ensemble sound and cueing each measure to a stopwatch.

3. The pianist and percussionist (sine tone diffusor) listen without headphones, complimenting the ensemble with all 21 notes themselves.

4. Sustain your individual note as long as your breath will allow, then breathe naturally to re-articulate. Don’t stress about coming back in if you must breathe before your line ends.

5. Bring to life a plane of sound. Always be gentle in articulating and leaving the sound, even at a more voluminous dynamic. No instrument plays with vibrato.

6. Tune to the drone in your headphones. It is very important to maintain tuning carefully throughout to the sound in your ear.

FREQUENCIES

Note	Frequency (Hz)	Equal Tempered Piano Note Approximations (Hz)
F#5 +	740	739.989
F#5 +	732	
C#5	556	
Bb5 +	475.2	
A5	441	
F#4	370	369.994
F#4	366	
D4 +	298	
D4	294	293.665
C#4	278	277.183
Bb4 +	237.6	
A4	220.5	220.000
F#3 +	185	184.997
F#3	183	
D3 +	149	
D3	147	146.832
C#3	139	138.591
A3	110.25	
D2 +	75.2	
D2	73.5	73.4162
D1	38.75	

GROUPING

Instruments are grouped based on how much they play together or adjacently to each other. Some groups listen to the same ambience while others have different ambiences playing through their headphones.

GROUP I
The Lowered D Ambience at 73.5 Hz
- Contrabassoon
- Violin I
- Double Bass

GROUP II
The Raised D Ambience at 75.2 Hz
- Alto Flute
- Violin II
- Cello

GROUP III
The C-Sharp Ambience at 139 Hz Drone
- Horn
- Viola

GROUP IV
The F-Sharp (Fifth Harmonic) of the Lowered D Ambience at 183 Hz
- Trumpet

The Raised F-Sharp Ambience at 185 Hz
- Clarinet

GROUP V
The Raised B-Flat Ambience at 237.6 Hz
- English Horn

The A (Third Harmonic) of the Lowered D Ambience at 110.25
- Trombone

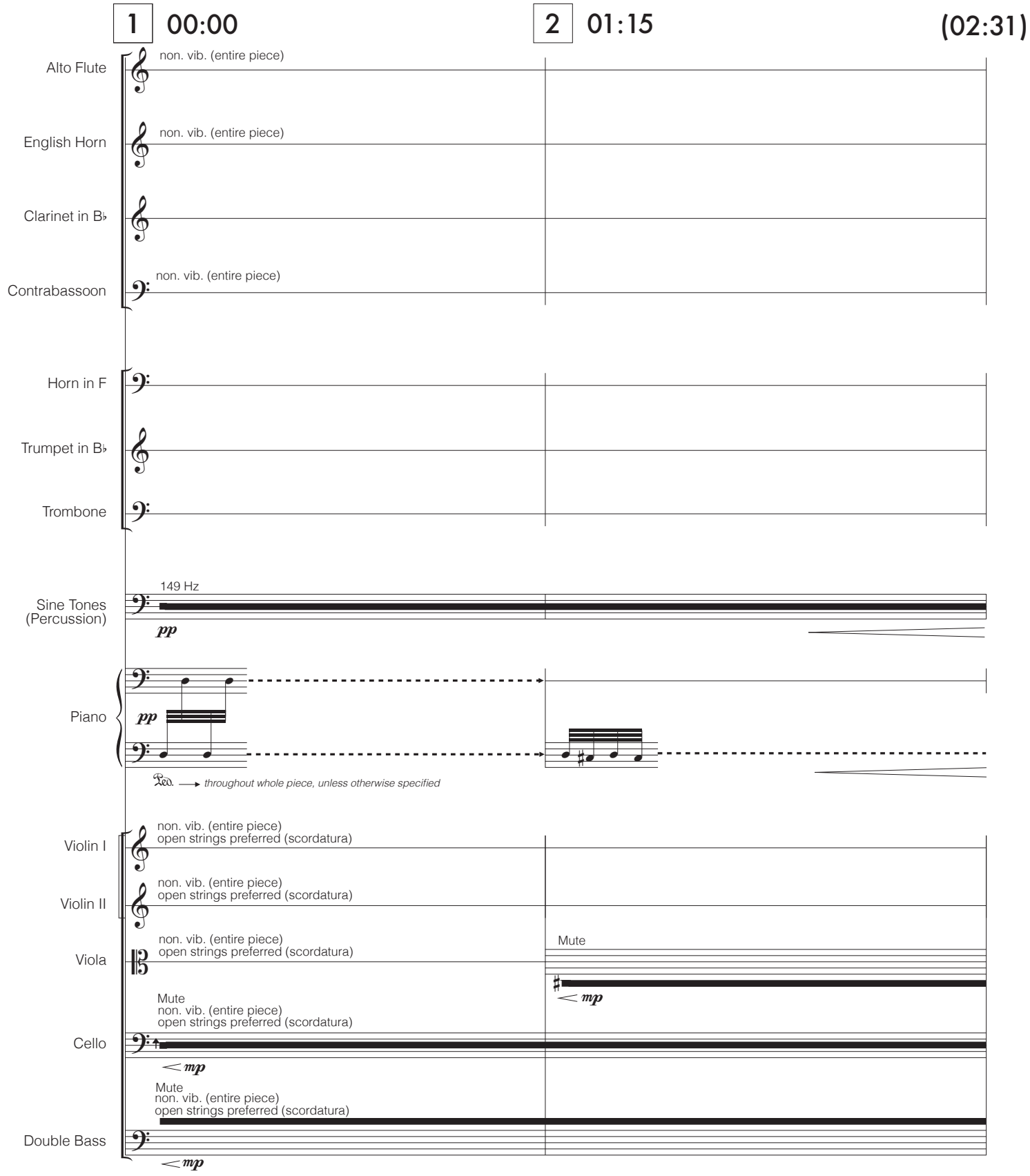
GROUP VI
The 21 Notes Ambience
- Percussion (sine tones)
- Piano

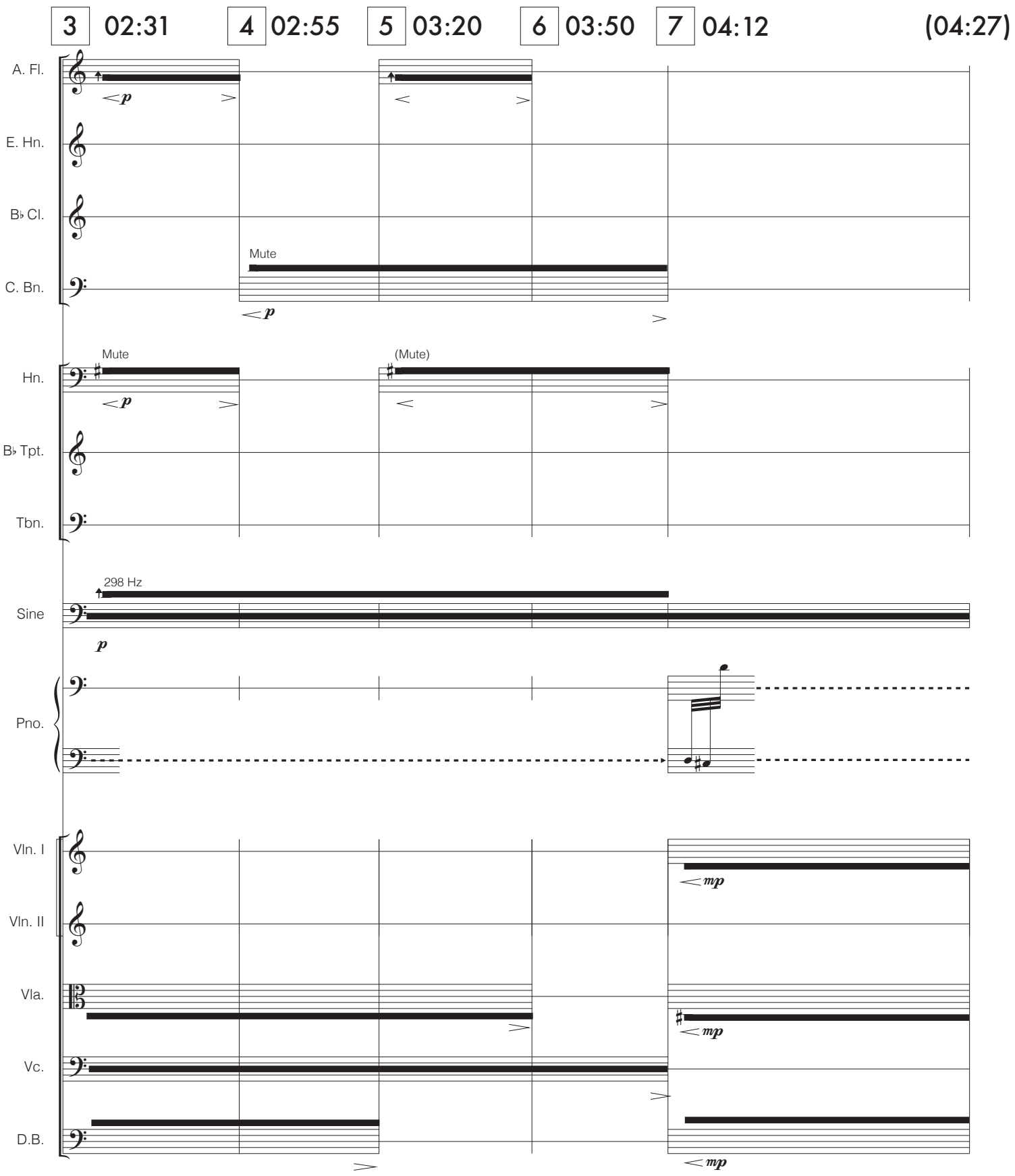
Transposed Score

TWENTY-ONE NOTES WITH FOURTEEN INSTRUMENTS

with private ambiences

Barry Sharp

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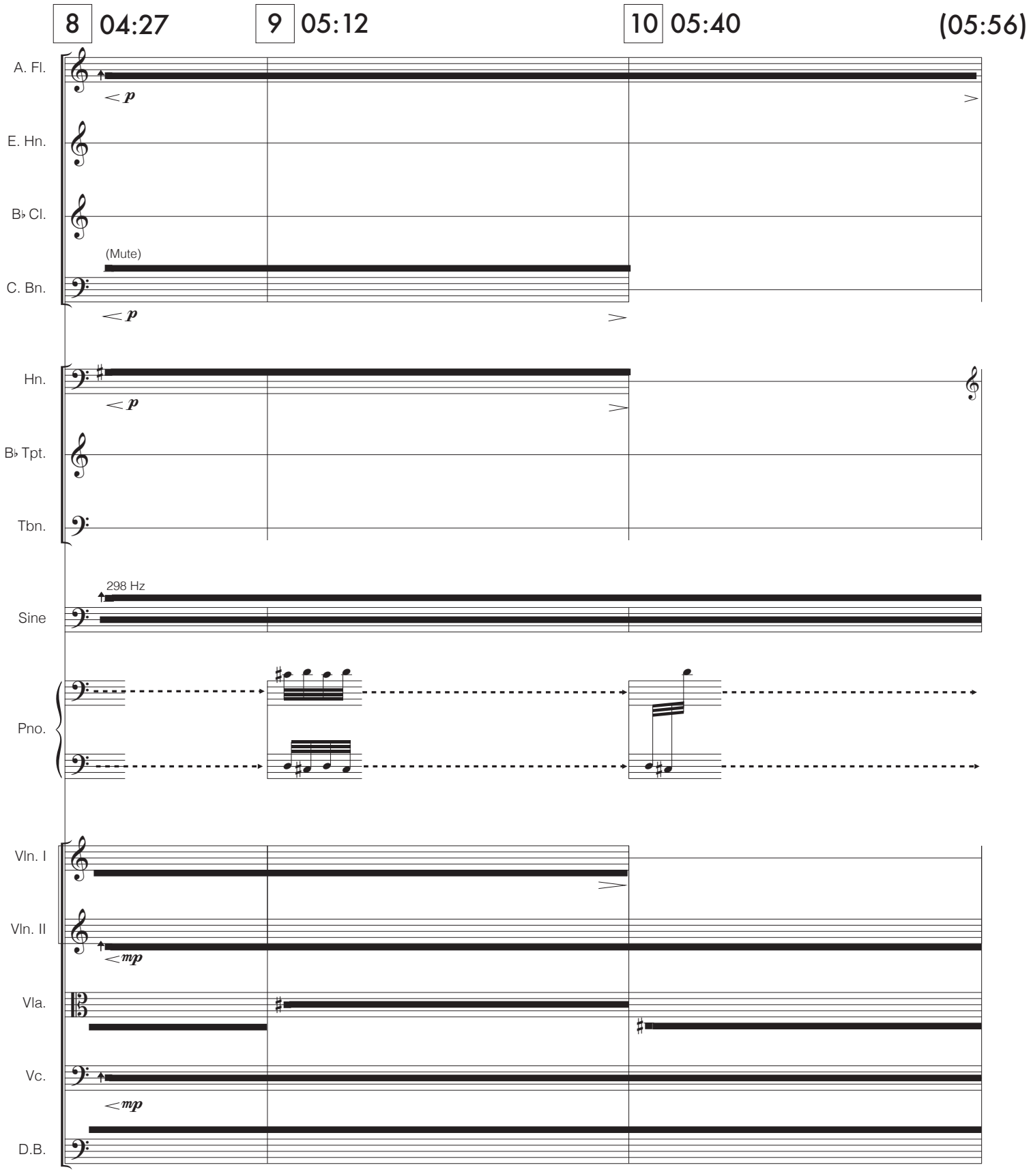
4 02:55
5 03:20
6 03:50
7 04:12
(04:27)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Mute
Hn.
Mute
(Mute)
B♭ Tpt.
Tbn.
298 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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9 05:12
10 05:40
(05:56)
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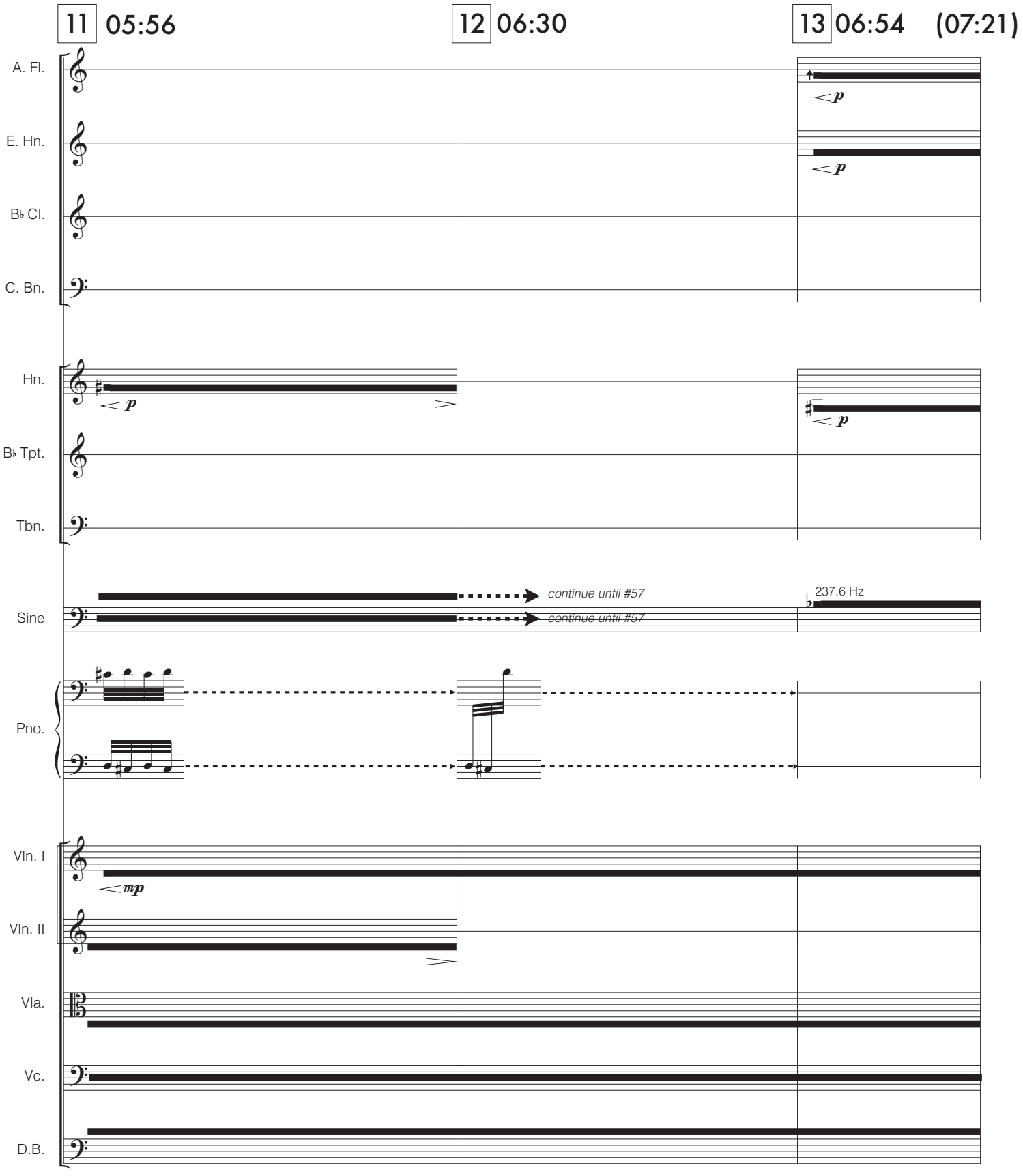
C. Bn.
(Mute)
Hn.
B♭ Tpt.
Tbn.
298 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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12 06:30
13 06:54 (07:21)
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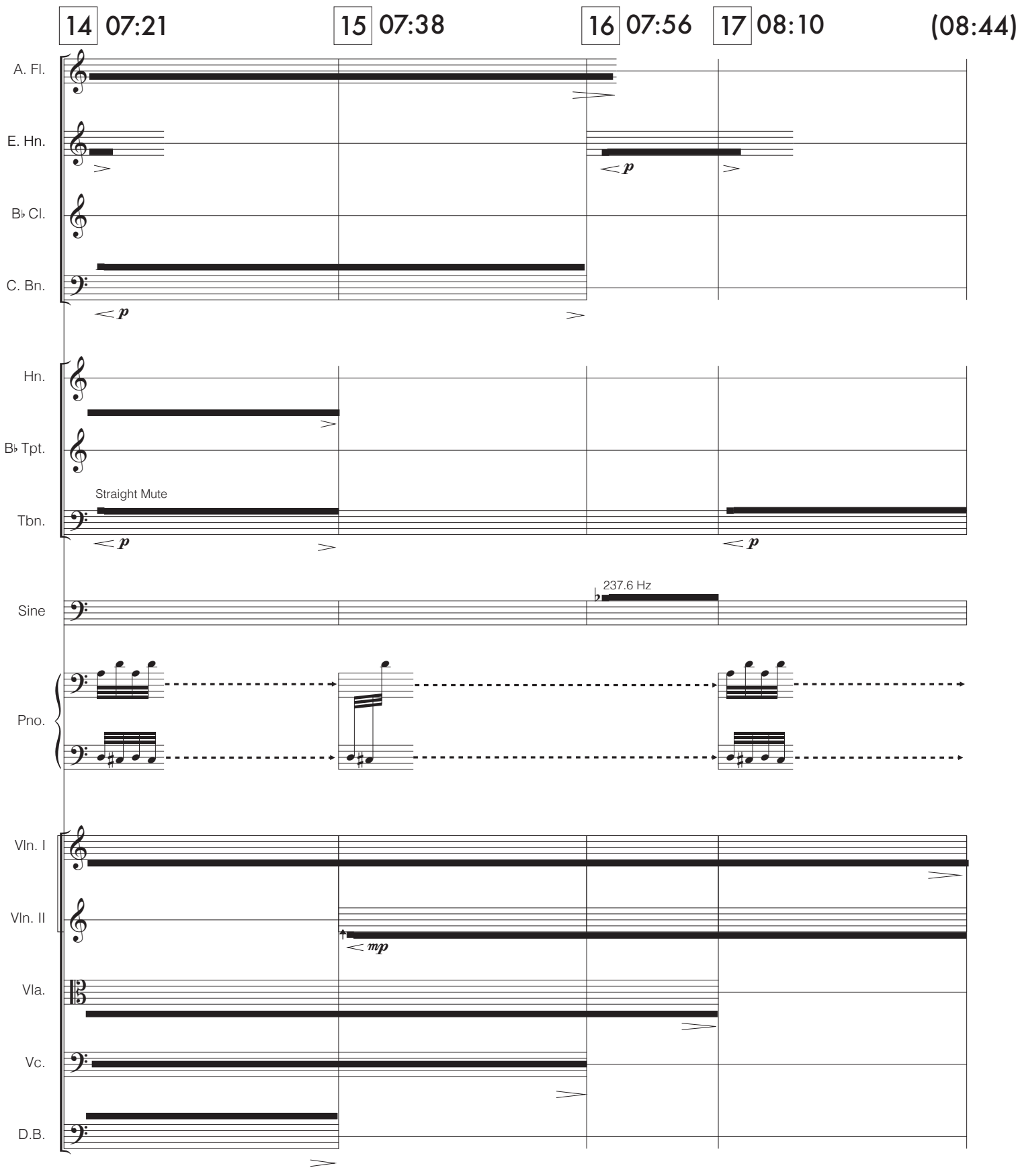
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp
continue until #57
continue until #57
237.6 Hz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15 07:38
16 07:56
17 08:10
(08:44)
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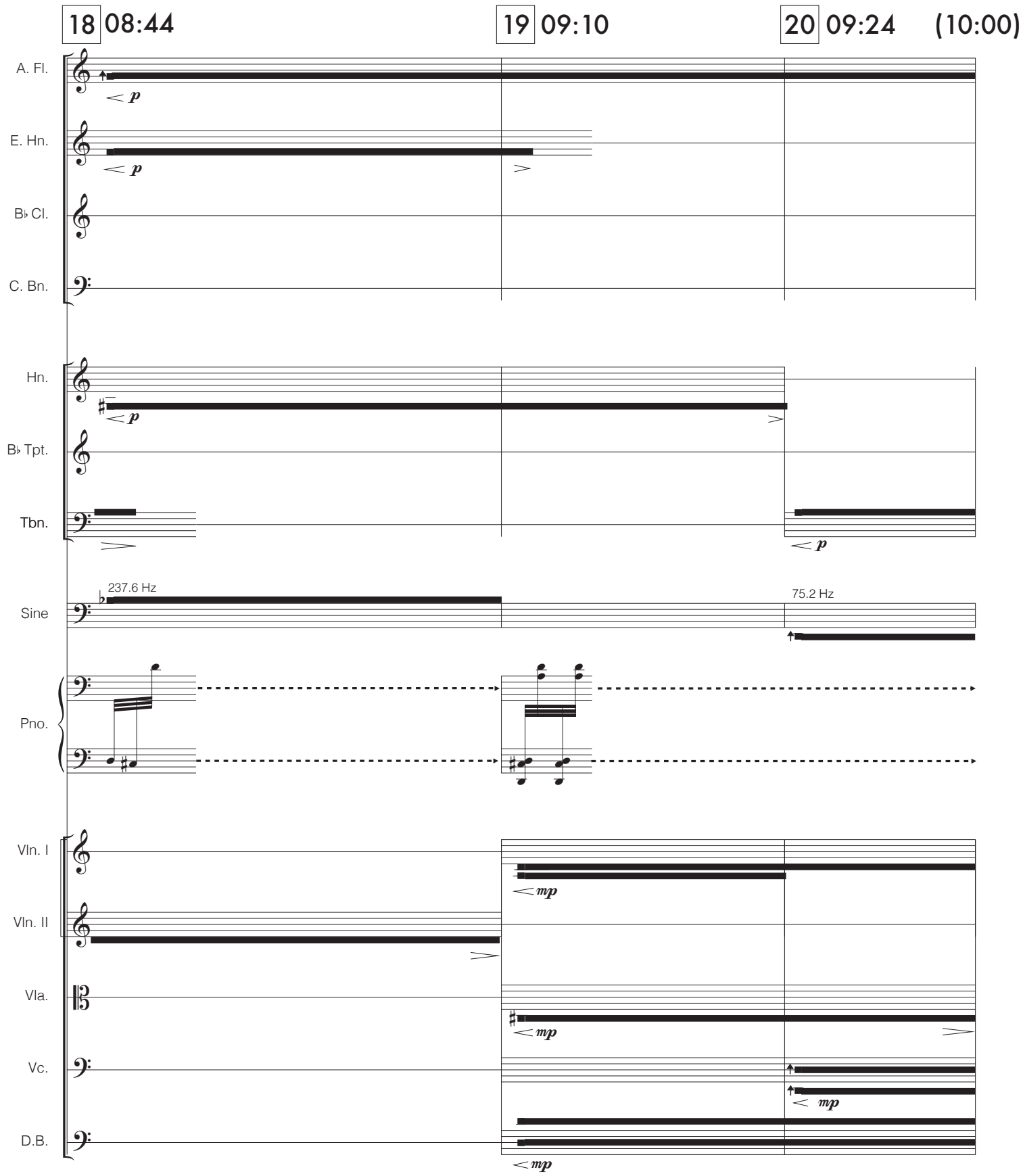
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Straight Mute
Tbn.
Sine
237.6 Hz
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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19 09:10
20 09:24 (10:00)
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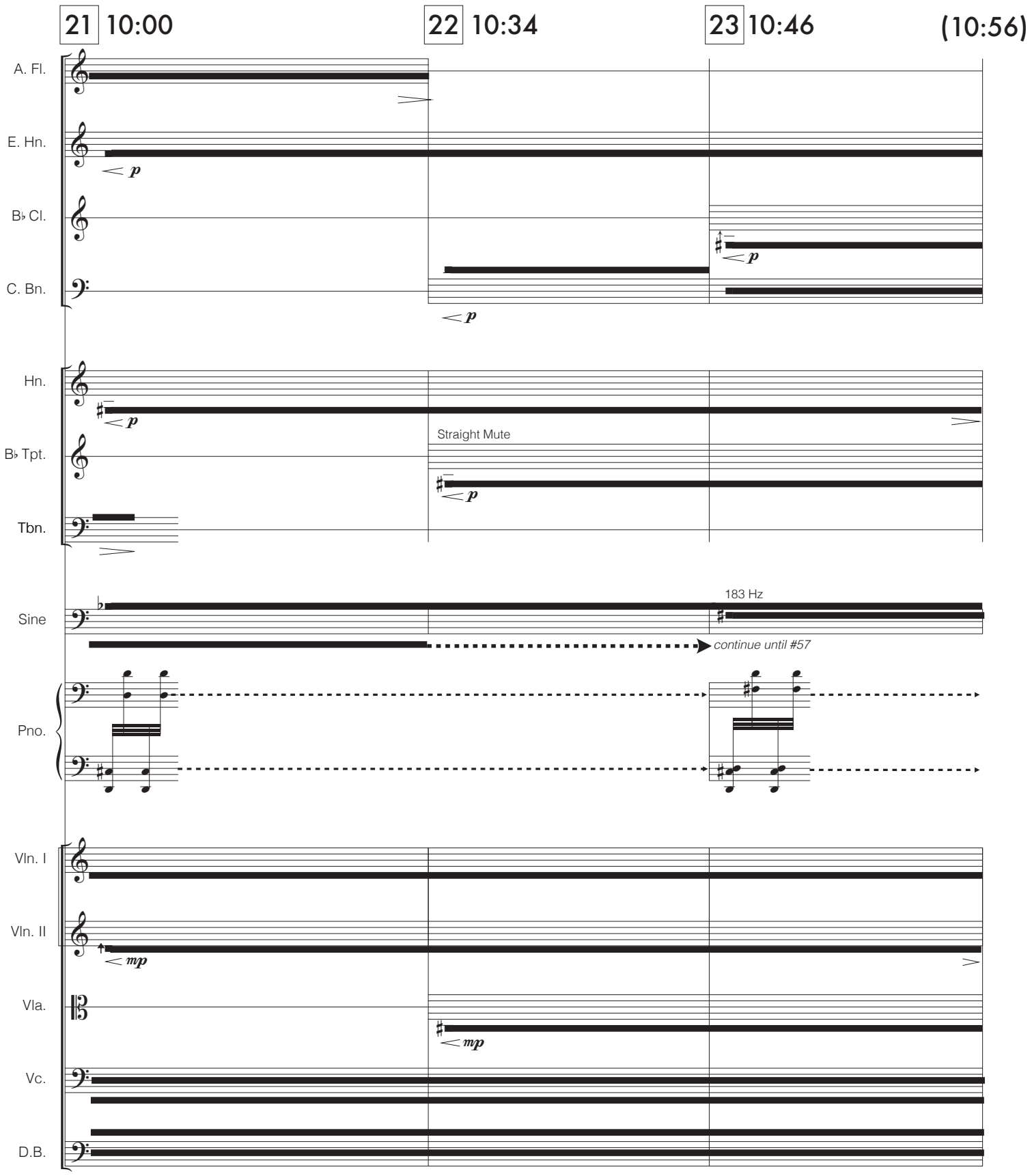
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
237.6 Hz
75.2 Hz
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp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22 10:34
23 10:46
(10:56)
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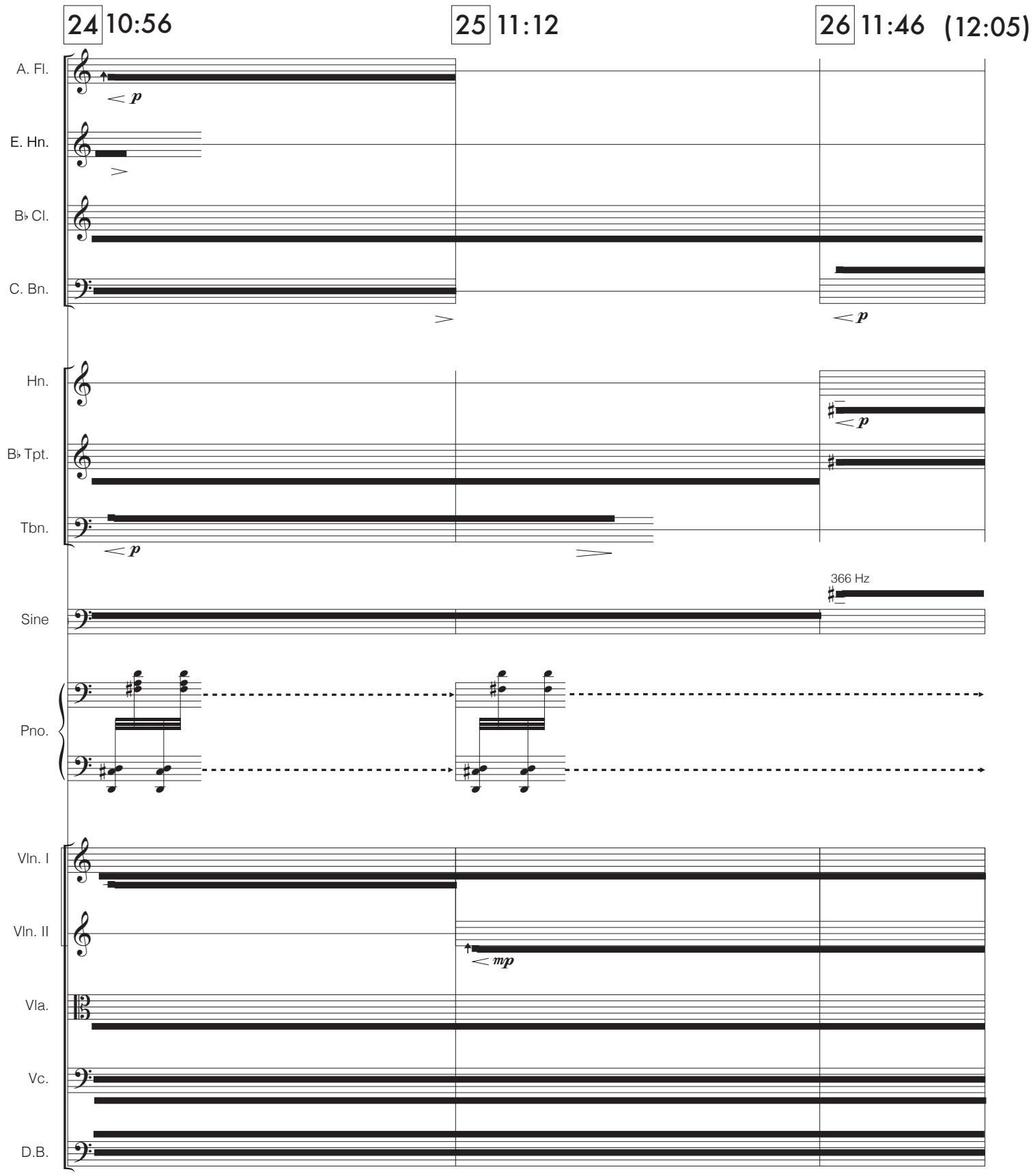
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Straight Mute
Tbn.
Sine
183 Hz
continue until #57
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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25 11:12
26 11:46 (12:05)
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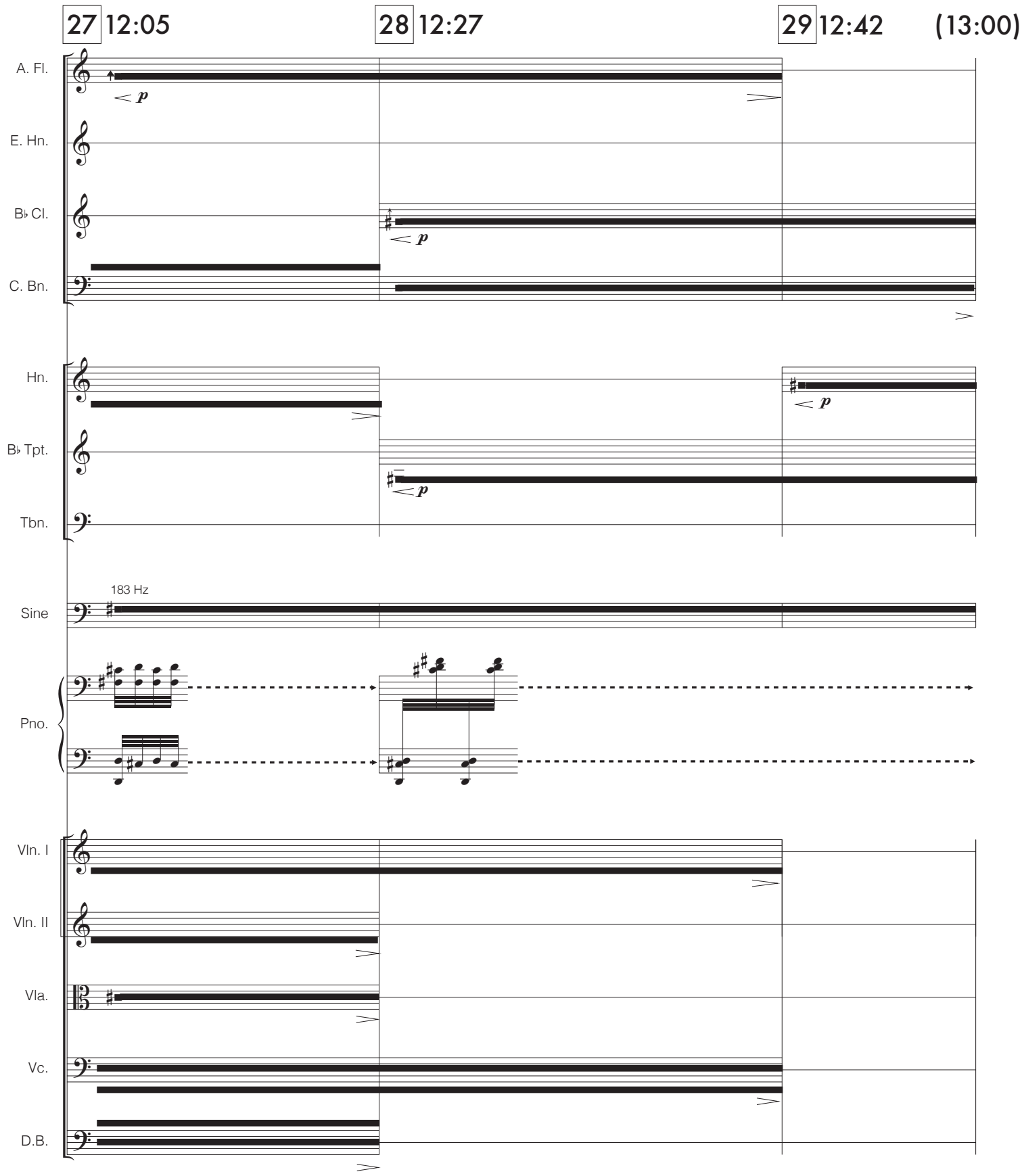
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
366 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp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28 12:27
29 12:42
(13:00)
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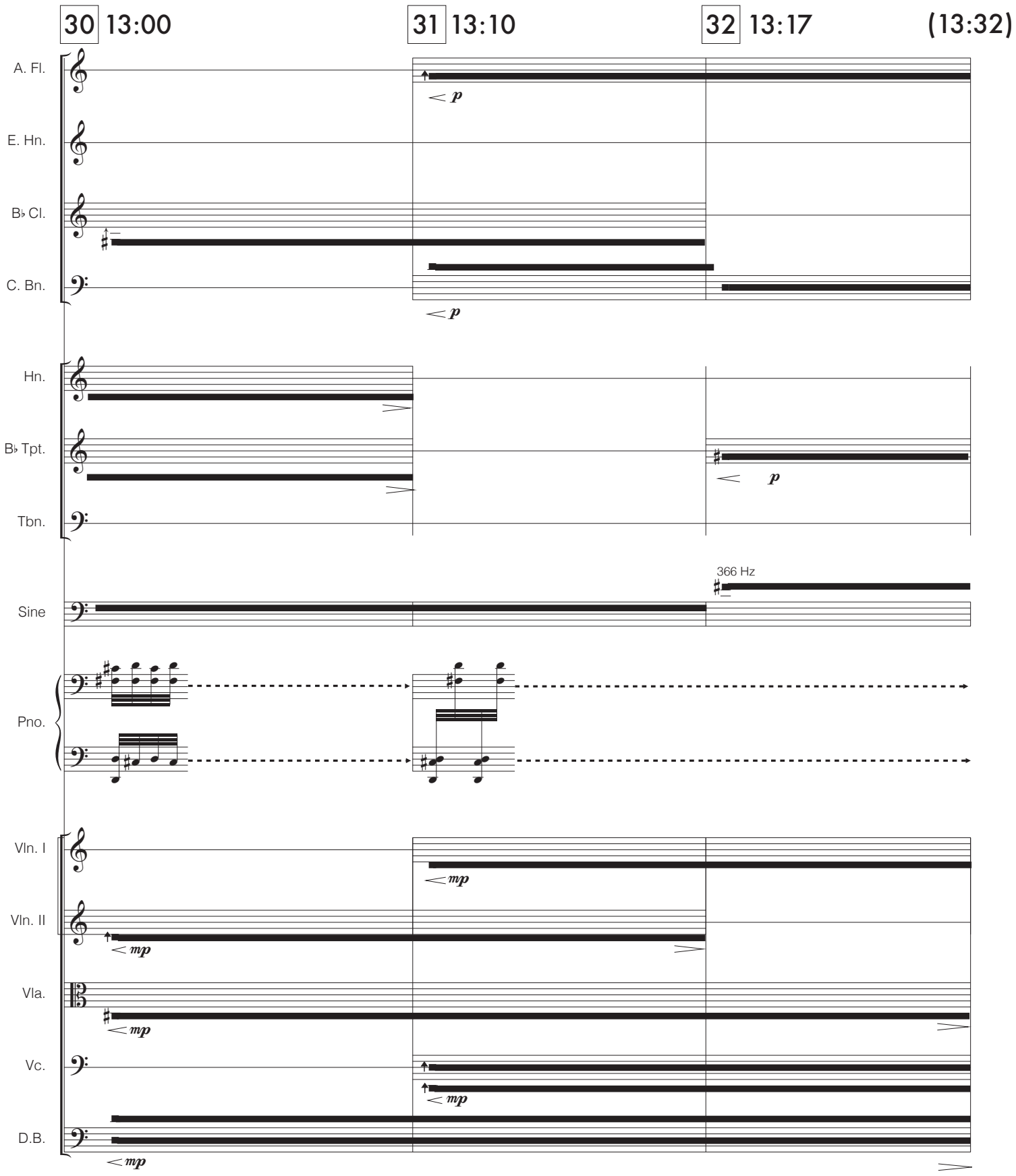
C. Bn.
Hn.
B♭ Tpt.
Tbn.
183 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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31 13:10
32 13:17
(13:32)
A. Fl.
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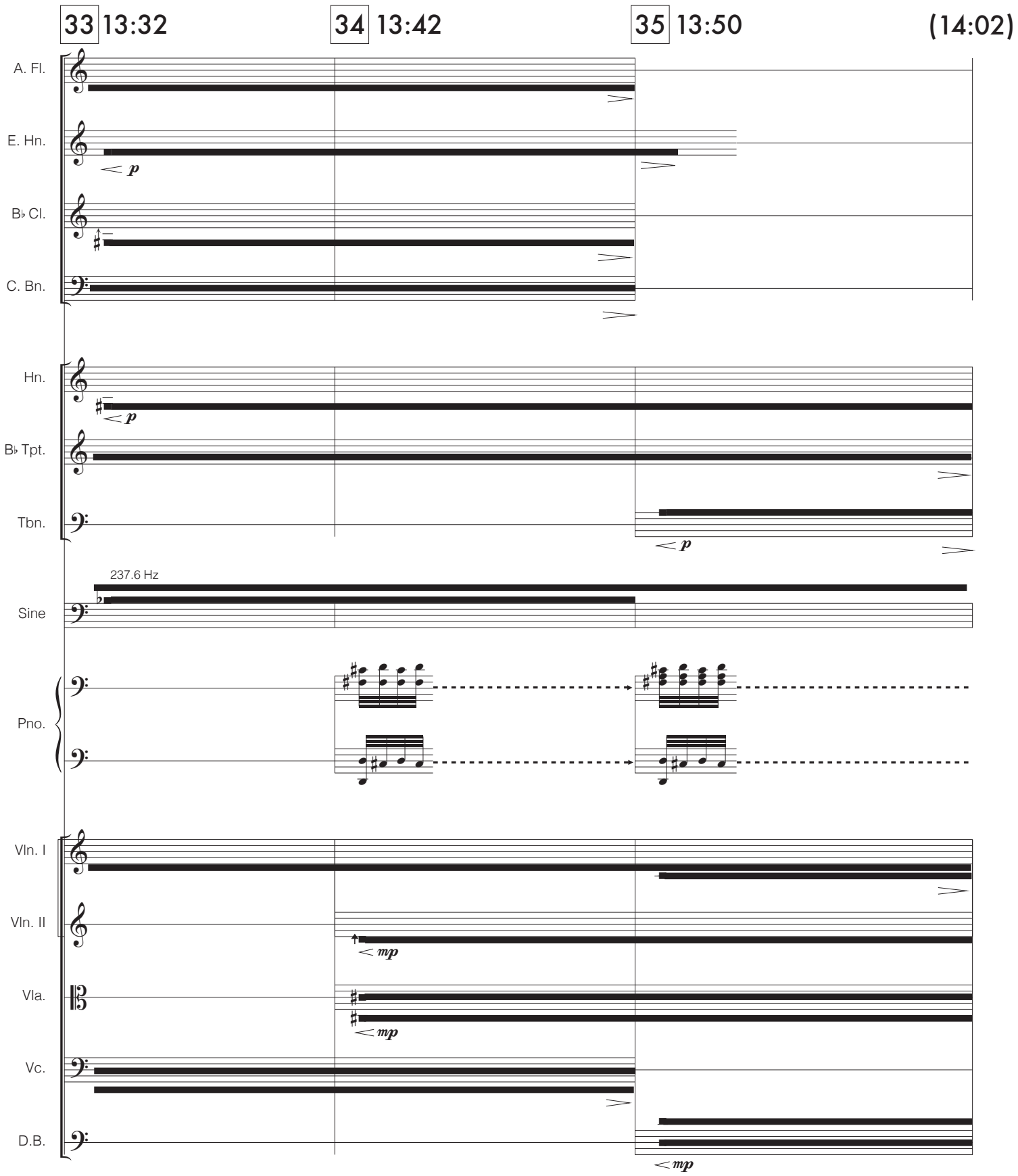
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
366 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.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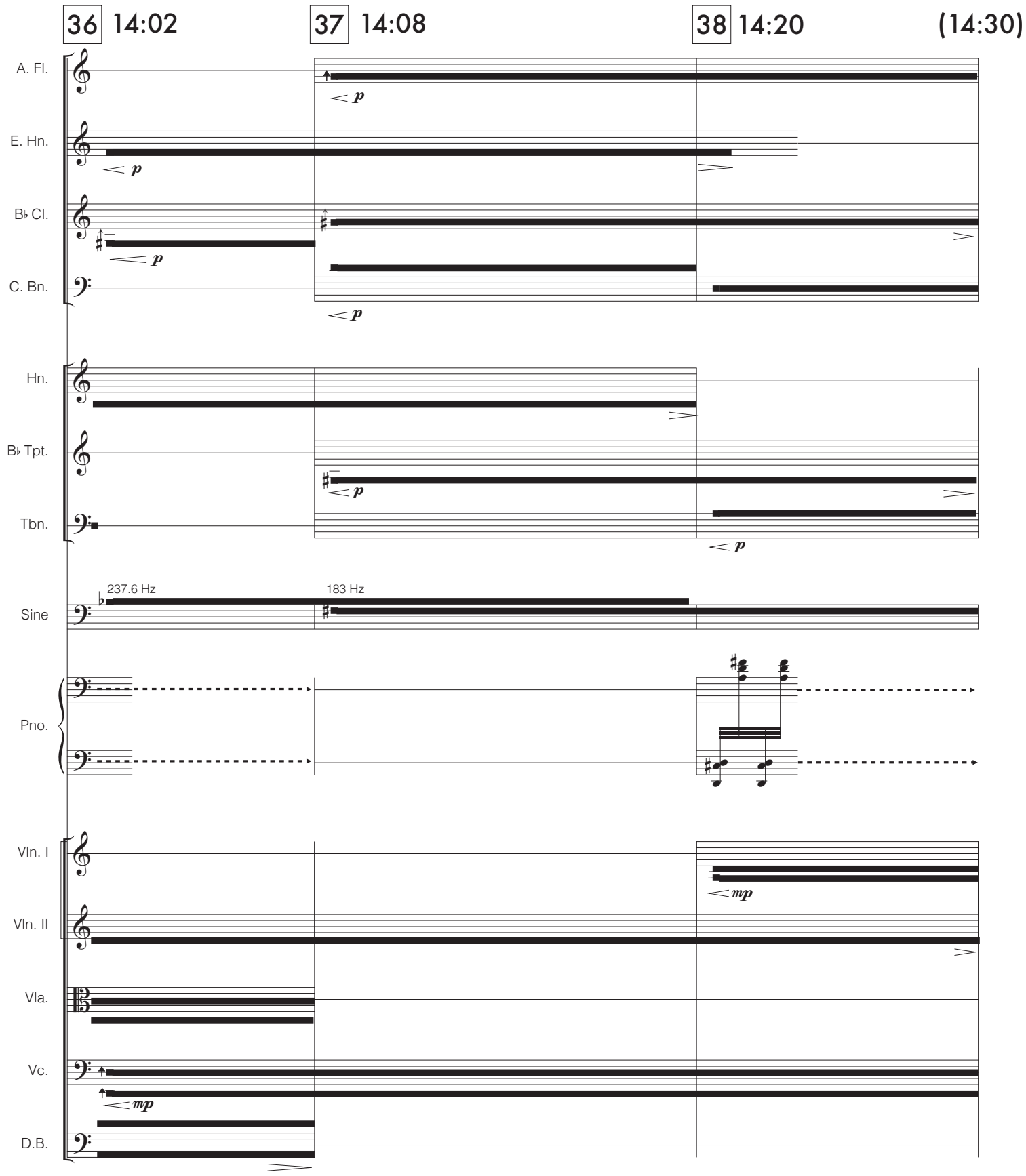
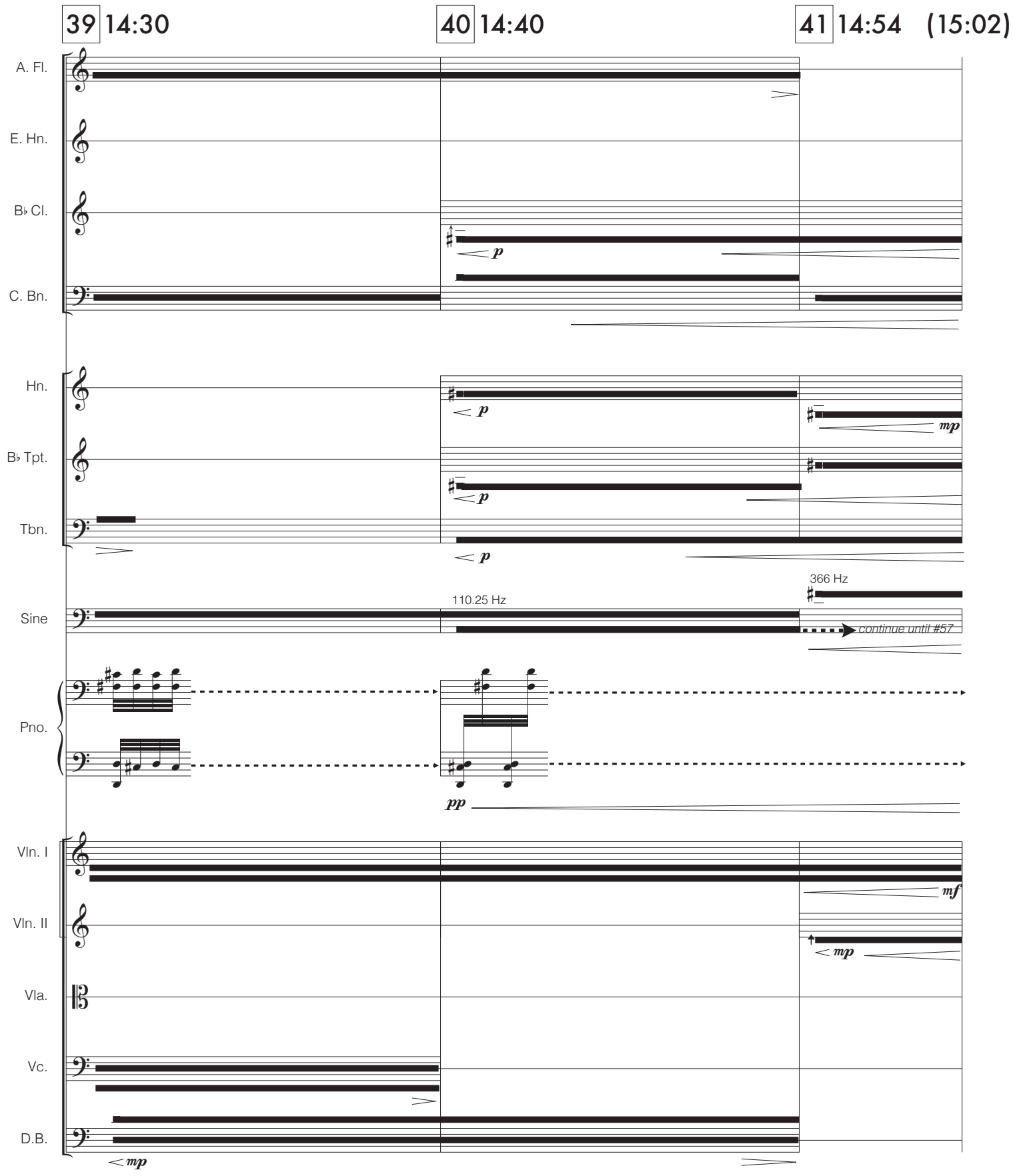
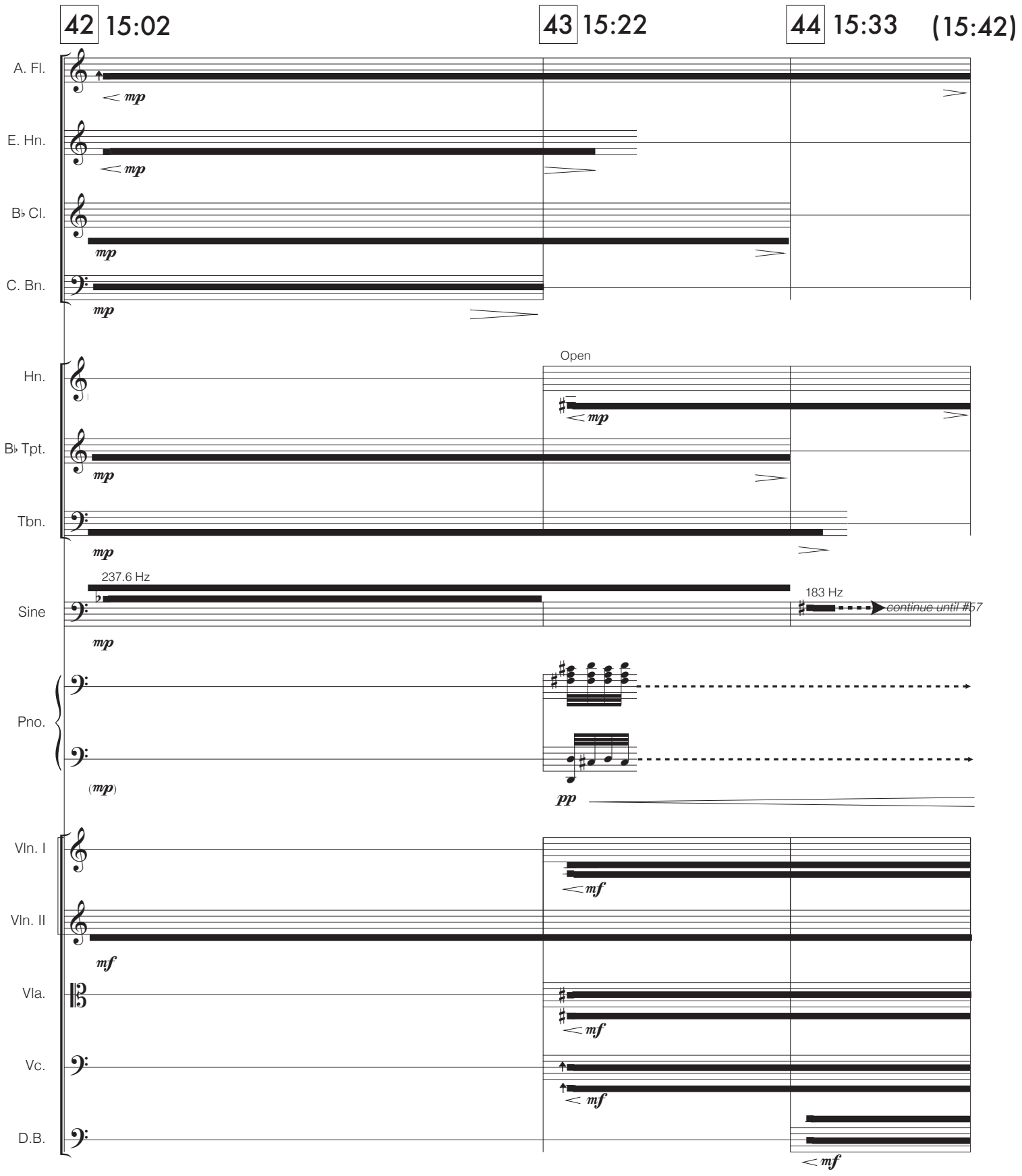
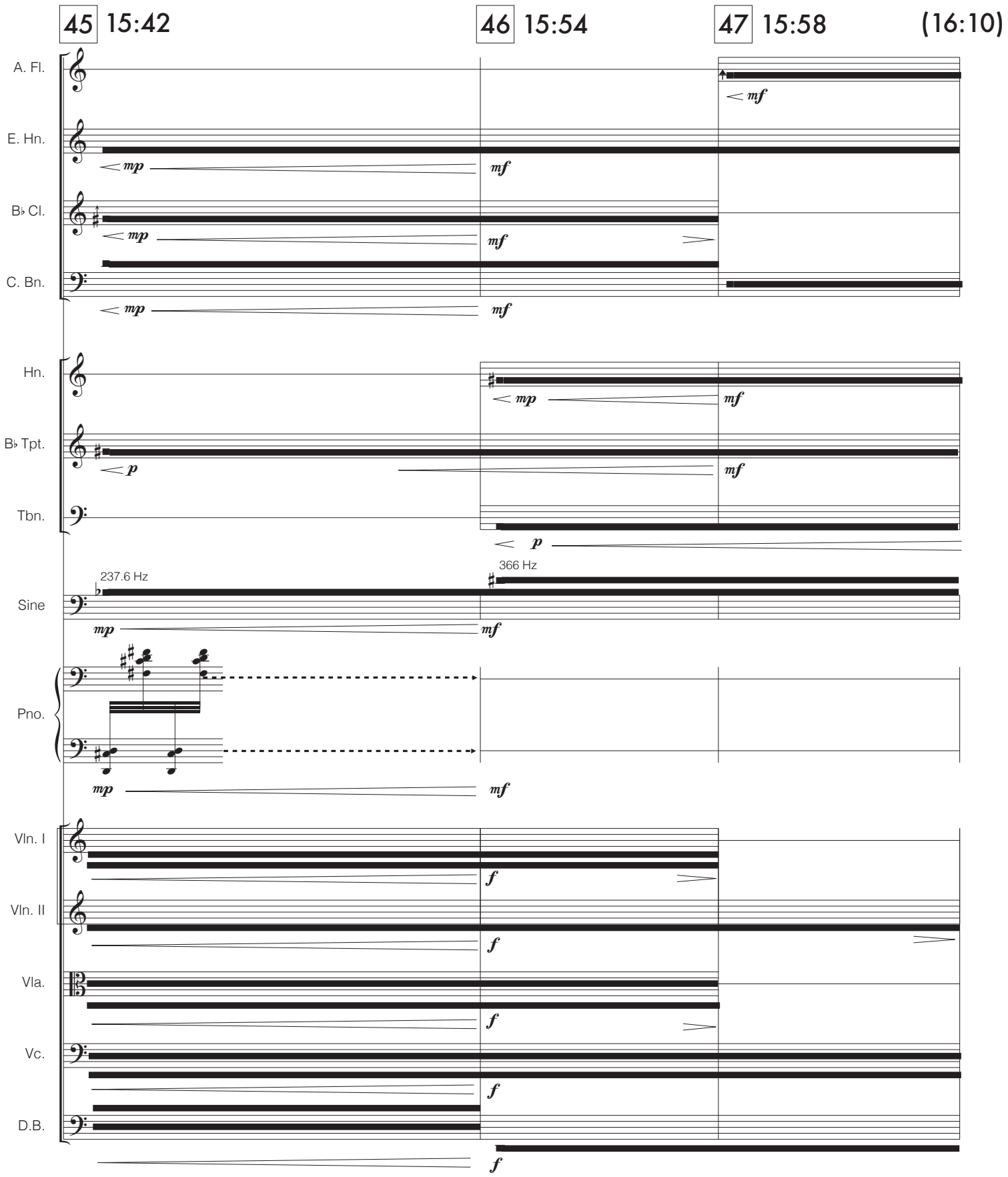
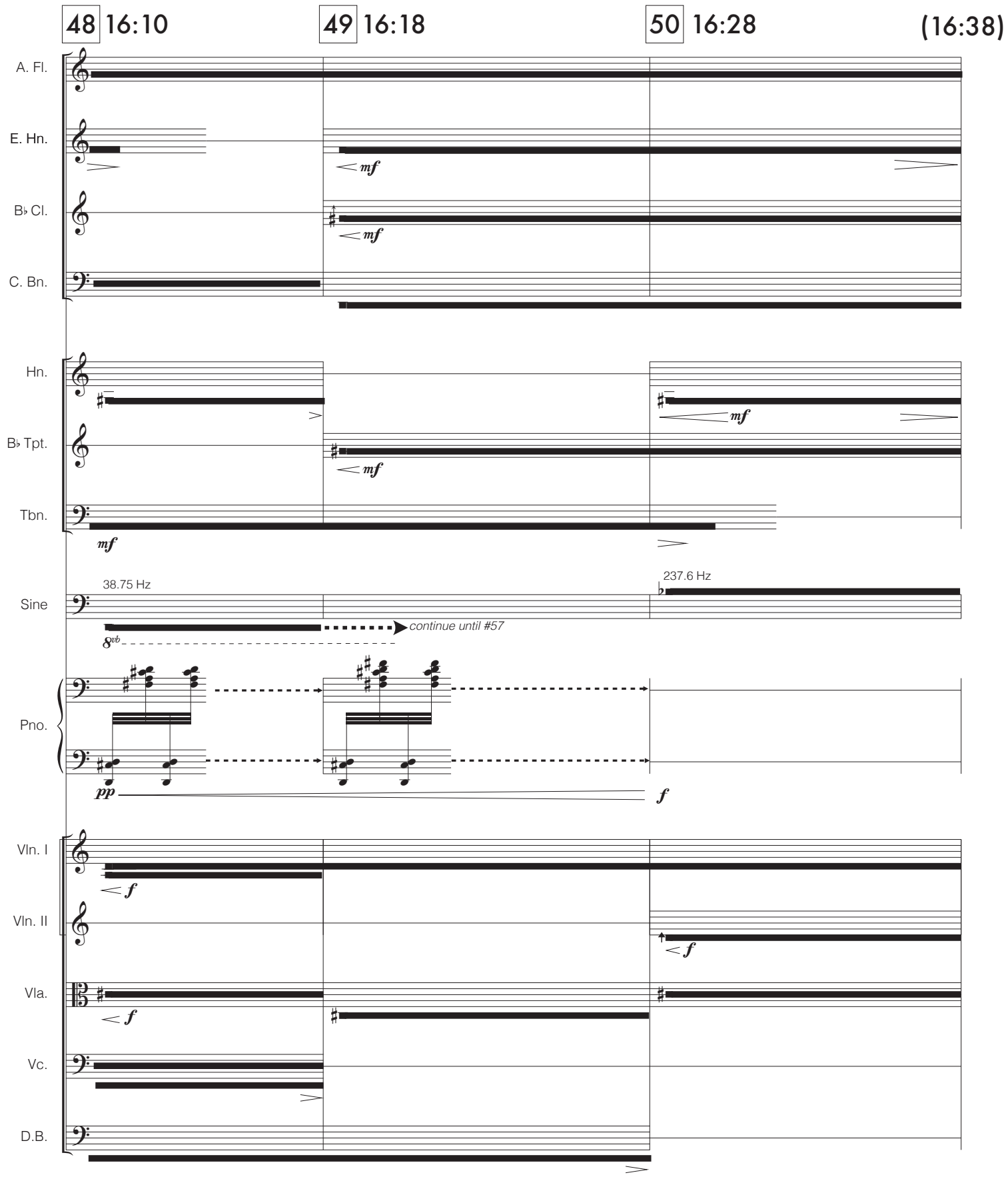
34 13:42
35 13:50
(14:02)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
237.6 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp

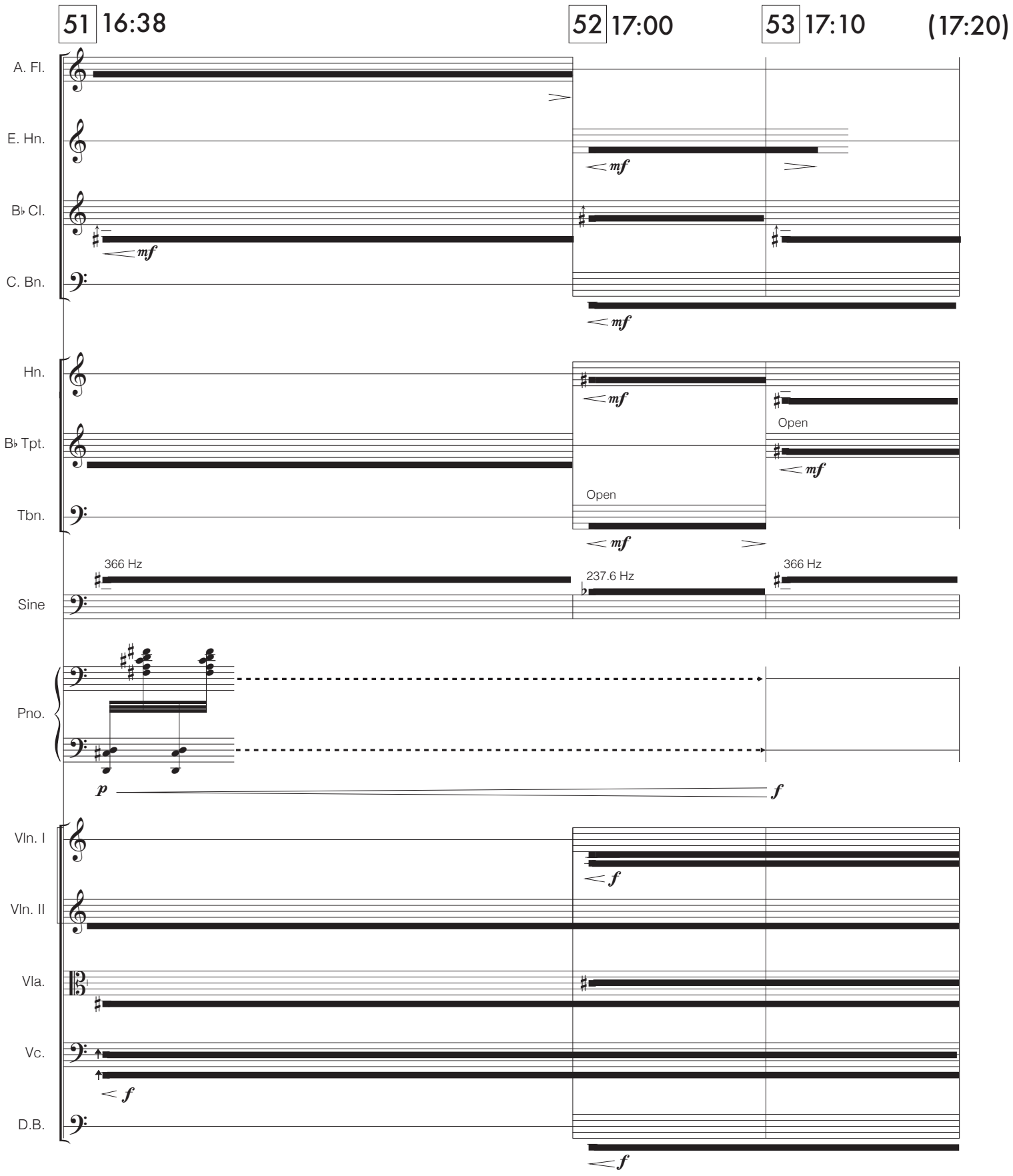

36 14:02
37 14:08
38 14:20
(14:30)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
237.6 Hz
183 Hz
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp

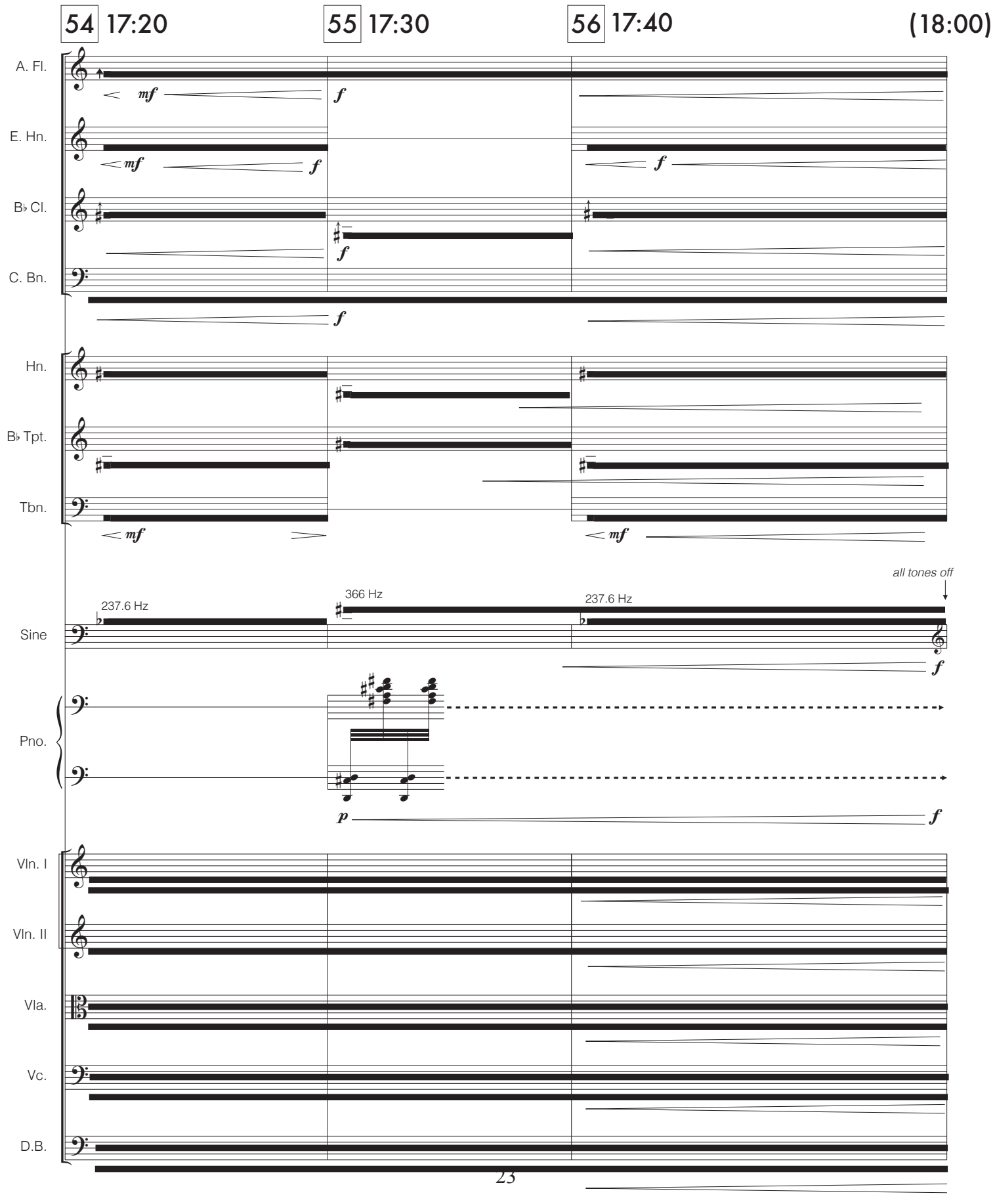

39 14:30
40 14:40
41 14:54 (15:02)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
p
mp
110.25 Hz
366 Hz
continue until #57
pp
mf

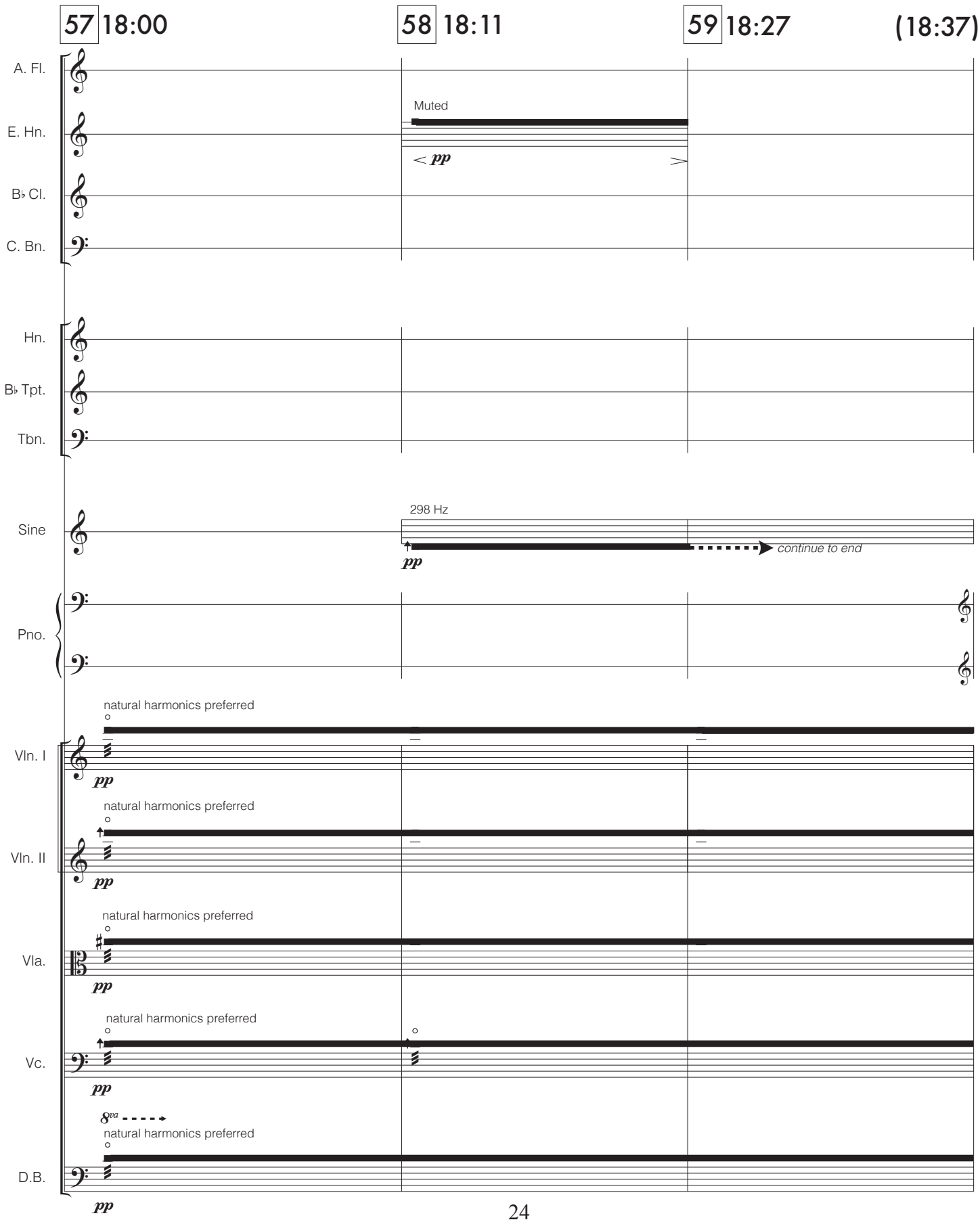

42 15:02
43 15:22
44 15:33
(15:42)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
Open
237.6 Hz
183 Hz
continue until #57
mp
(mp)
pp
mf

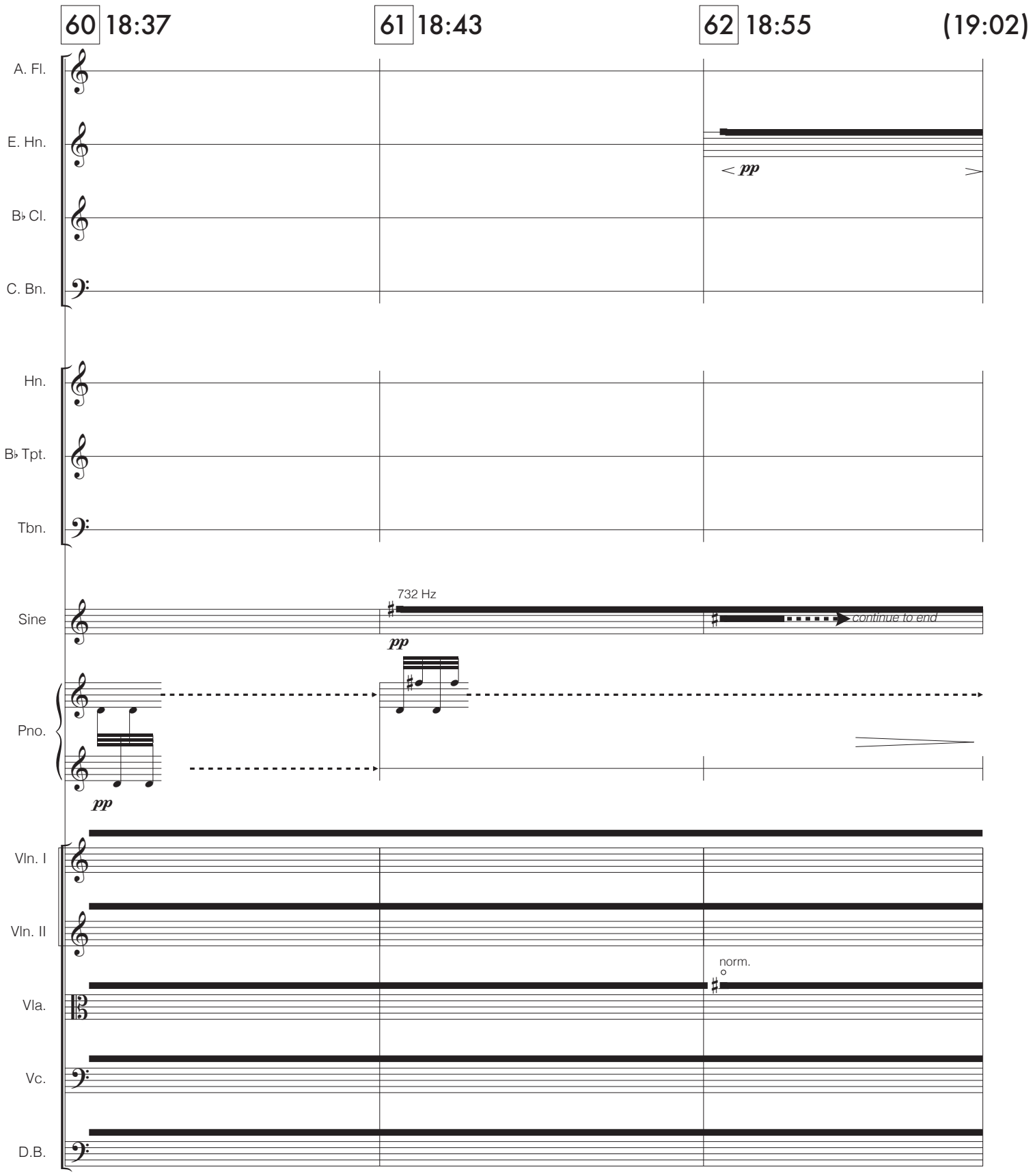

45 15:42
46 15:54
47 15:58
(16:10)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
237.6 Hz
366 Hz
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
mp
mf
p
f

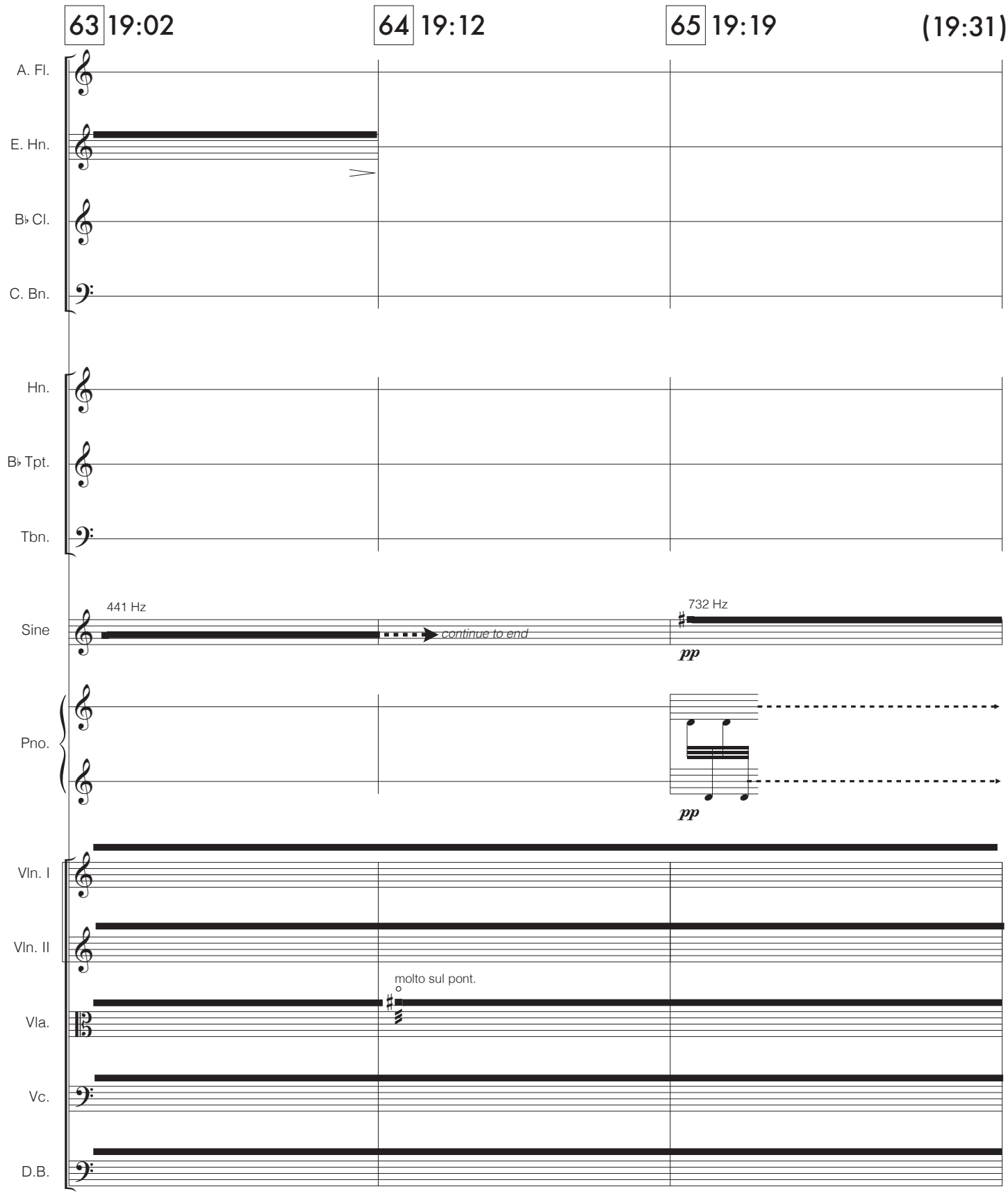

48 16:10
49 16:18
50 16:28
(16:38)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
38.75 Hz
237.6 Hz
continue until #57
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.

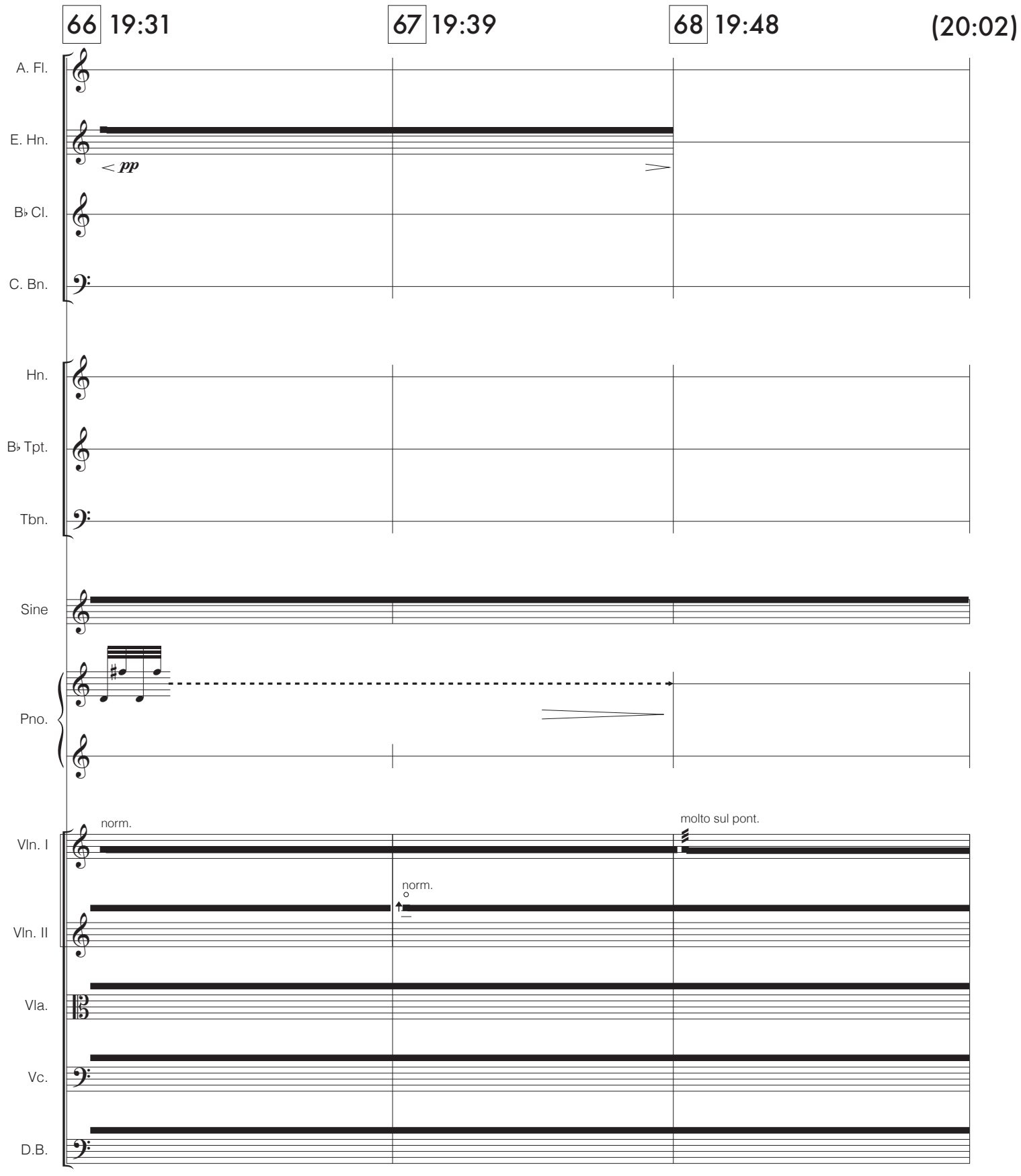

51 16:38
52 17:00
53 17:10
(17:20)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
mf
Open
366 Hz
237.6 Hz
p
f

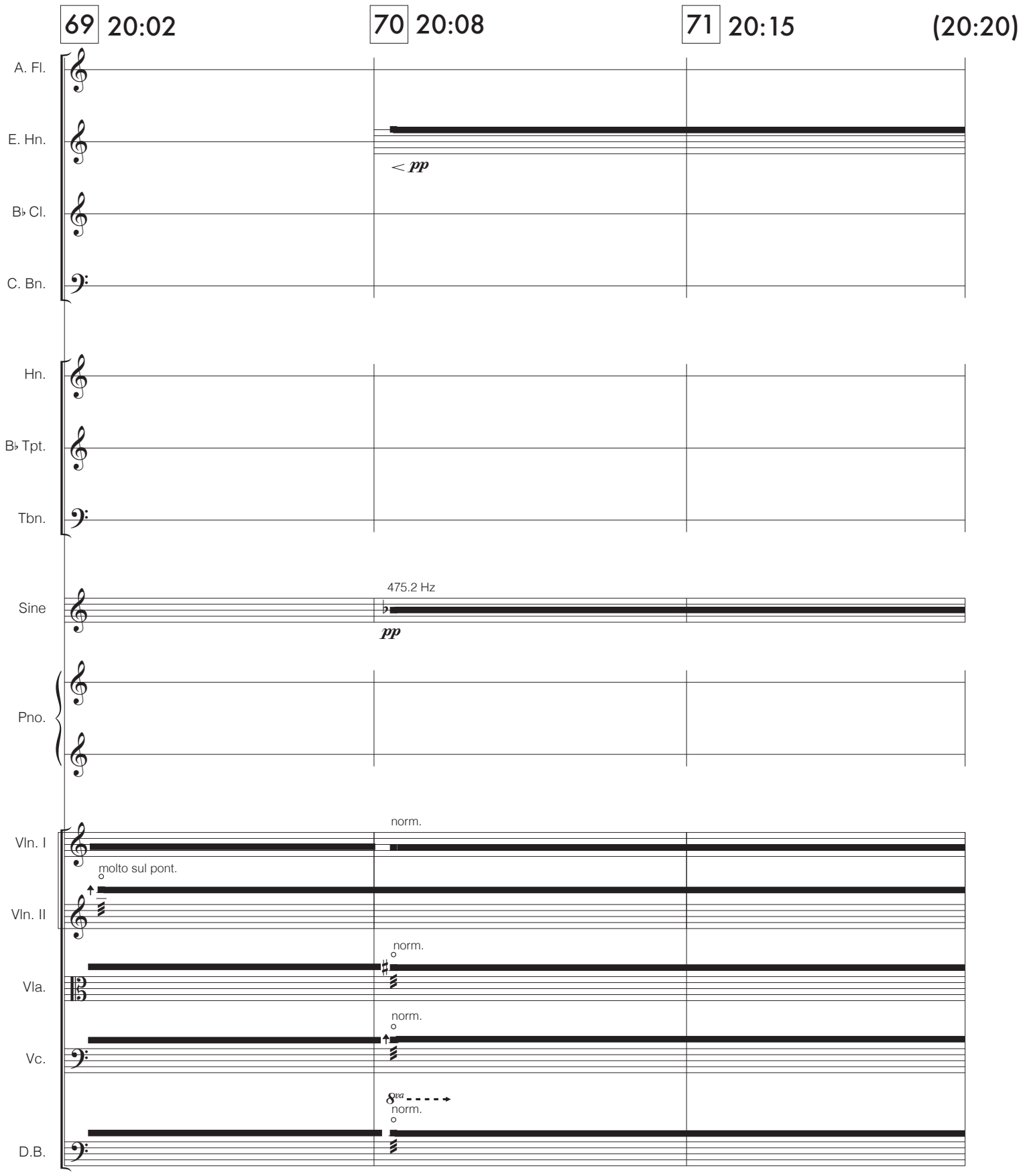

54 17:20
55 17:30
56 17:40
(18:00)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
mf
f
237.6 Hz
366 Hz
237.6 Hz
all tones off
p

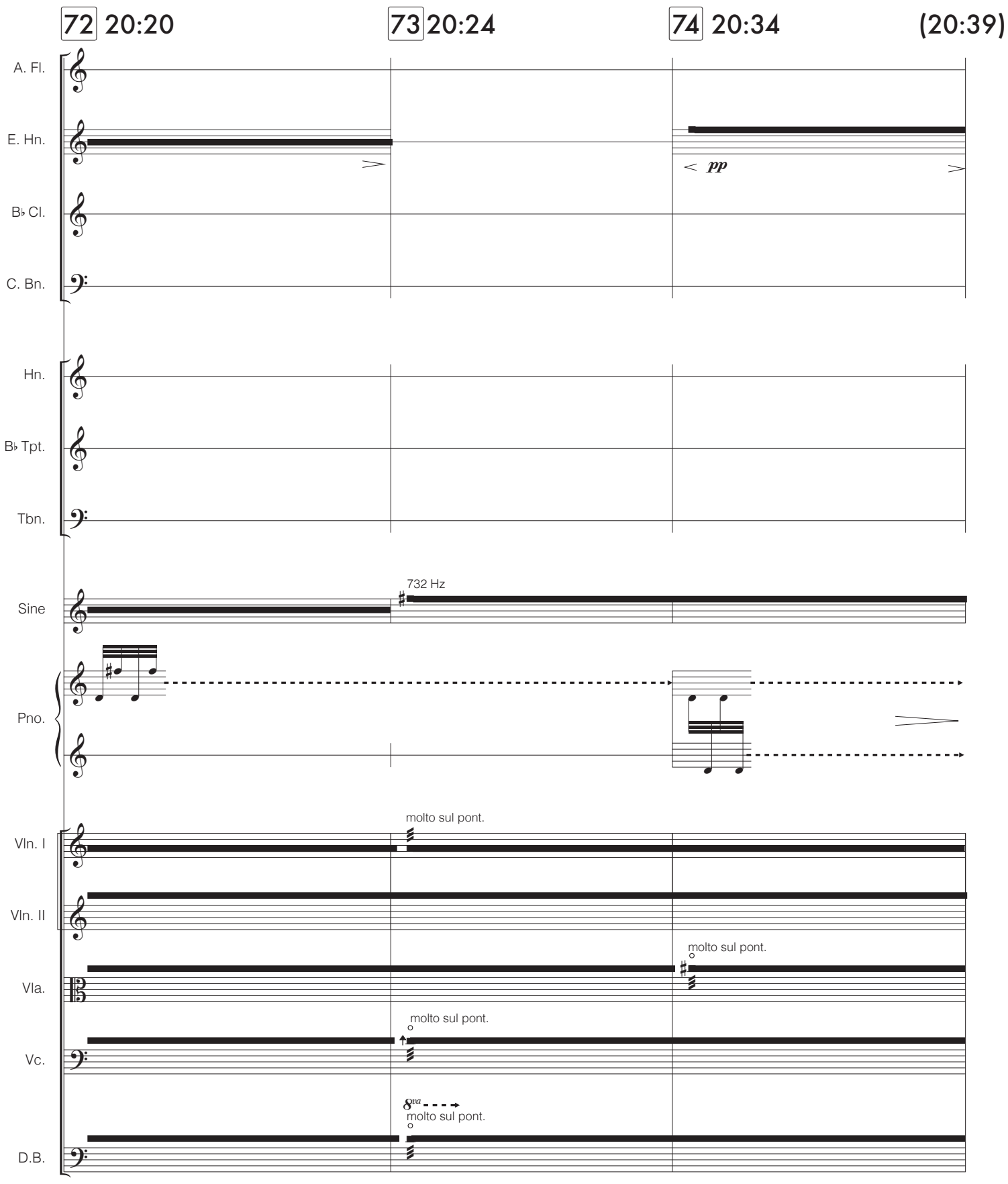

57 18:00
58 18:11
59 18:27
(18:37)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Muted
pp
Hn.
B♭ Tpt.
Tbn.
Sine
298 Hz
pp
continue to end
Pno.
Vln. I
natural harmonics preferred
pp
Vln. II
natural harmonics preferred
pp
Vla.
natural harmonics preferred
pp
Vc.
natural harmonics preferred
pp
8va
D.B.
natural harmonics preferred
pp

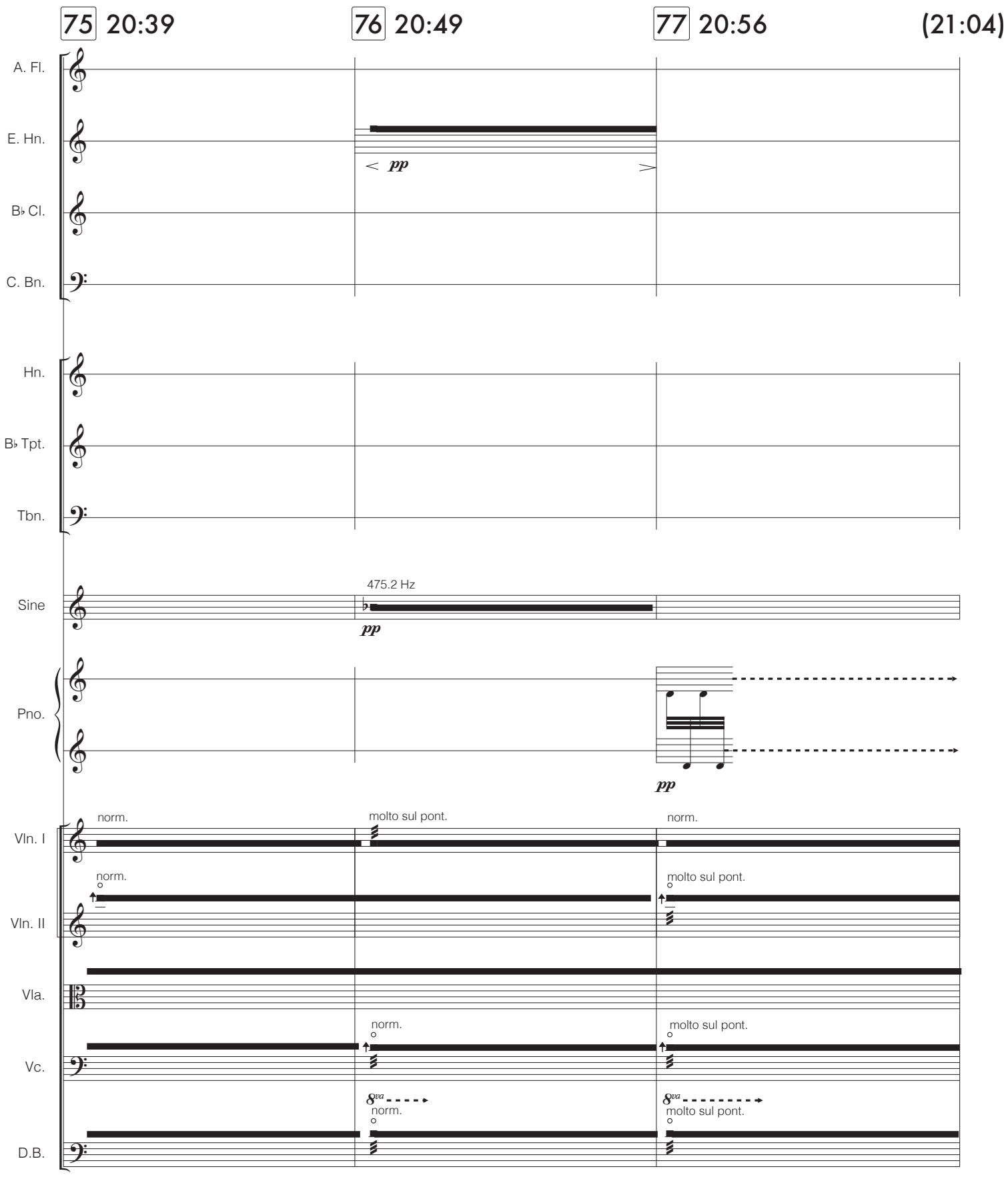

60 18:37
61 18:43
62 18:55
(19:02)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
Vln. I
Vln. II
Vla.
Vc.
D.B.
pp
732 Hz
continue to end
norm.

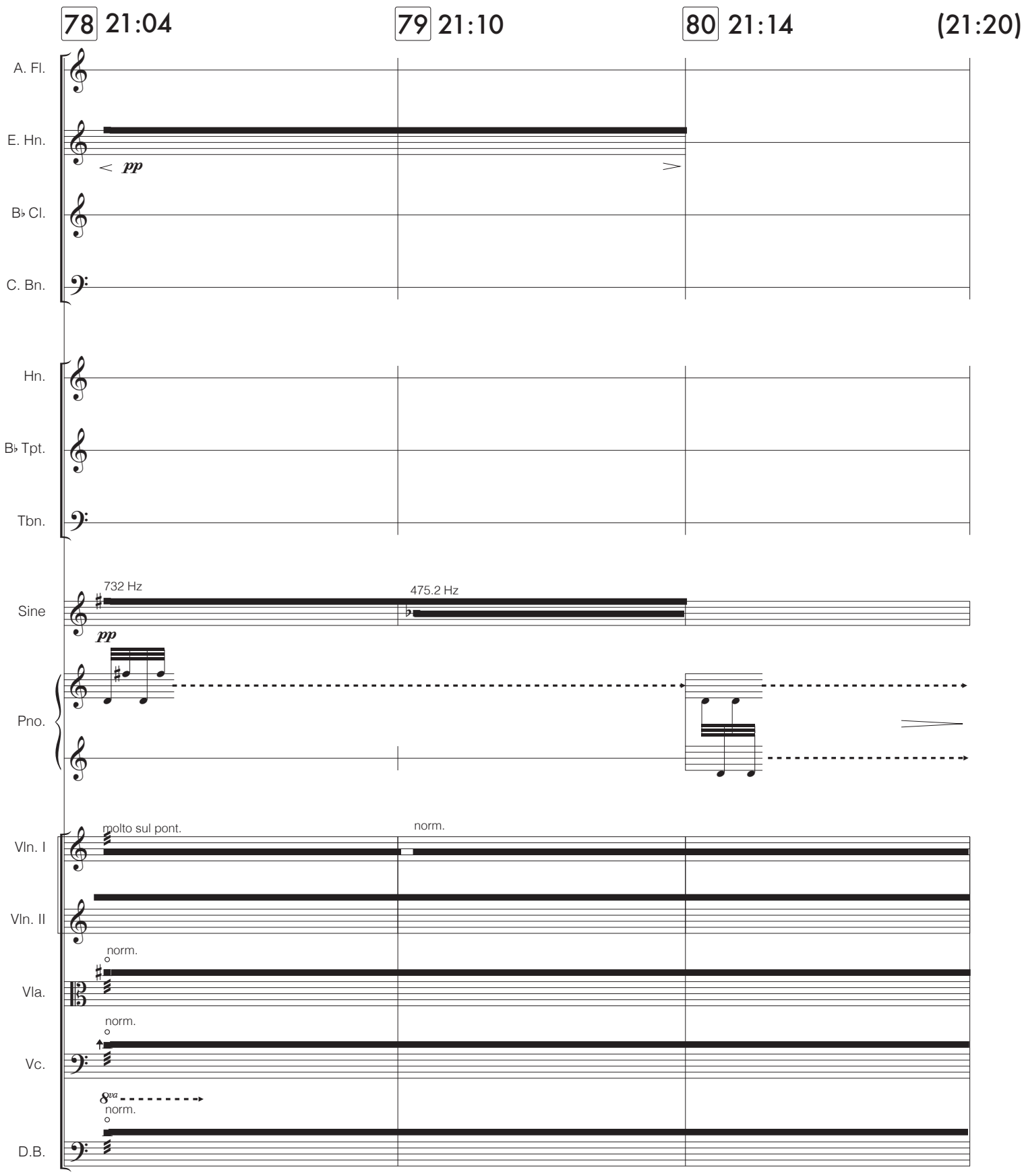

63 19:02
64 19:12
65 19:19
(19:31)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
441 Hz
continue to end
732 Hz
pp
Pno.
pp
Vln. I
Vln. II
molto sul pont.
Vla.
Vc.
D.B.


66 19:31
67 19:39
68 19:48
(20:02)
A. Fl.
E. Hn.
pp
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
Pno.
norm.
molto sul pont.
Vln. I
norm.
Vln. II
Vla.
Vc.
D.B.


69 20:02
70 20:08
71 20:15
(20:20)
A. Fl.
E. Hn.
< pp
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
475.2 Hz
pp
Pno.
Vln. I
norm.
molto sul pont.
Vln. II
norm.
Vla.
norm.
Vc.
8va
norm.
D.B.


72 20:20
73 20:24
74 20:34
(20:39)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
pp
Hn.
B♭ Tpt.
Tbn.
Sine
732 Hz
Pno.
Vln. I
molto sul pont.
Vln. II
Vla.
molto sul pont.
Vc.
molto sul pont.
8va
molto sul pont.
D.B.


75 20:39
76 20:49
77 20:56
(21:04)
A. Fl.
E. Hn.
B♭ Cl.
C. Bn.
pp
Hn.
B♭ Tpt.
Tbn.
Sine
475.2 Hz
pp
Pno.
pp
Vln. I
norm.
molto sul pont.
norm.
Vln. II
norm.
molto sul pont.
Vla.
norm.
molto sul pont.
Vc.
8va
norm.
8va
molto sul pont.
D.B.


78 21:04
79 21:10
80 21:14
(21:20)
A. Fl.
E. Hn.
pp
B♭ Cl.
C. Bn.
Hn.
B♭ Tpt.
Tbn.
Sine
732 Hz
475.2 Hz
pp
Pno.
Vln. I
molto sul pont.
norm.
Vln. II
norm.
Vla.
norm.
Vc.
8va
norm.
D.B.